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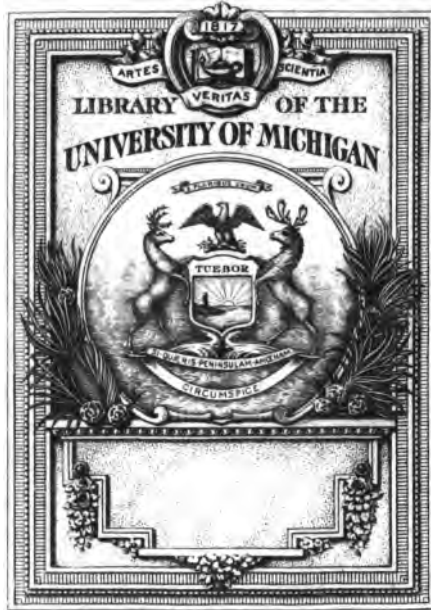
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Federal Trade Commission. Book-paper industry.



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65TH CONGRESS
1st Session

SENATE

DOCUMENT
No. 79

BOOK-PAPER INDUSTRY

LETTER FROM THE CHAIRMAN OF THE FEDERAL TRADE COMMISSION

TRANSMITTING

A FINAL REPORT OF THE FINDINGS OF
FACT, TOGETHER WITH CONCLUSIONS
AND RECOMMENDATIONS WITH REF-
ERENCE TO THE BOOK-PAPER INDUSTRY



AUGUST 15 (calendar day, August 21), 1917.—Referred to
the Committee on Printing

WASHINGTON
GOVERNMENT PRINTING OFFICE
1917

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SENATE RESOLUTION NO. 122.

[Reported by Mr. FLETCHER.]

IN THE SENATE OF THE UNITED STATES,
September 11, 1917.

Resolved, That the final report on the book-paper industry, submitted by the Federal Trade Commission on August 21, 1917, in response to Senate resolution No. 269, Sixty-fourth Congress (by Mr. Fletcher), be printed as a Senate document, and that 5,000 additional copies be printed for the use of the Senate document room.

Attest:

JAMES M. BAKER,
Secretary.

[S. RES. 269, SIXTY-FOURTH CONGRESS, FIRST SESSION.]

Resolved, That the Federal Trade Commission be, and the same is hereby, directed to investigate the increase in the prices of the various kinds of paper required for printing and binding during the last year, and to ascertain and report, at as early a date as practicable, whether there have been any violations of the antitrust acts by any corporation in connection with such advance in prices, with special reference to the prices demanded for paper necessary for the public printing and binding, and also whether or not the paper so used was manufactured in the United States or imported from the Dominion of Canada.

JAMES M. BAKER,
Secretary.

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LETTER OF TRANSMITTAL.

FEDERAL TRADE COMMISSION,
Washington, August 21, 1917.

SIR: By direction of the Commission I am transmitting herewith, pursuant to a resolution of the Senate adopted September 7, 1916, the final report of the Federal Trade Commission on the book-paper industry.

Very truly, yours,

WM. J. HARRIS, *Chairman.*

The PRESIDENT OF THE SENATE,
Washington, D. C.

ACKNOWLEDGMENT.

The commission desires to mention as especially contributing to the preparation of this report Messrs. E. O. Merchant, LeClaire Hoover, and William T. Chantland. Messrs. F. L. Hawes, W. W. Bays, J. K. Arnold, and Richard J. Clark also rendered valuable assistance.

REPORT ON THE BOOK-PAPER INDUSTRY.

STATEMENT OF FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS.

FINDINGS.

The Federal Trade Commission has been engaged in an investigation of the book-paper industry, pursuant to Senate resolution 269, Sixty-fourth Congress, first session, adopted September 7, 1916 (Senator Fletcher), and submits herewith a final report of its findings of fact, together with conclusions and recommendations. A preliminary report was submitted to the Senate on June 13, 1917.

Book paper is a general term designating roughly all of the grades of print paper except news print. It is used by hundreds of periodicals and magazines, including religious, trade, and farm papers, and also by publishers of books, and is therefore vested with a public interest similar to that affecting news-print paper.

There were in 1916 approximately 40 companies operating 70 mills, the bulk of whose output was book paper, and a number of other mills which manufactured some book paper in addition to various other grades. The output of the principal book-paper mills in 1916 probably aggregated more than a million tons, valued at more than \$87,000,000.

PRINCIPAL FINDINGS OF FACT.

1. During the year 1916 the prices of the different grades of book paper showed large increases over those for the preceding year. Contracts made by 23 manufacturers in the last half of 1916 on the average were 85 per cent higher for machine finish, 66 per cent higher for supercalendered, and 65 per cent higher for coated book paper than in 1915. The percentage of increase in current prices, except on coated paper, for sales to publishers in several large centers was even higher.

2. The average cost of manufacture of 39 principal book-paper mills for the year 1916 was \$7.63 per ton higher than for 1915, the increase in particular mills ranging from less than \$2 per ton in several cases to more than \$20 per ton in the most extreme case. Costs were rising throughout the year, however, and for 24 mills for which cost data were secured for the first quarter of 1917 the cost was \$17.35 per ton greater on the average than for the same mills in the year 1916. In general, the increase in cost was greater for the mills purchasing their pulp than for those producing it.

3. The average profits per ton of 39 principal book-paper mills were nearly 100 per cent higher in 1916 than for the preceding year. In some mills there was no increase in profits, while in others the

increase was very large, the relation of profits for the two years depending upon the proportion of the total output of each mill sold under old contracts at normal prices. The average profits of 24 mills for the first quarter of 1917 were \$20.66 per ton higher than for 1916.

4. The margins of profit of paper jobbers on book-paper sales were generally much larger in 1916 than in 1915. The average increase in margins on current sales of machine-finish book paper for the fourth quarter of 1916 over the third quarter of 1915 was 492 per cent for Boston jobbers, 200 per cent for the principal New York jobbers, and 203 per cent for Chicago jobbers.

5. The domestic production of book paper was nearly 20 per cent greater in 1916 than in 1915, but domestic consumption and exports increased more rapidly, so that stocks declined about 50 per cent. Imports, which have never been large enough to be a factor, are now practically nothing.

6. The volume of advertising and the circulation of the principal publications of the country using book paper showed a large increase in 1916 over 1915. The increase in pages of advertising printed by 129 leading periodicals was 29 per cent.

7. Twenty-three important book-paper companies, producing from 75 to 80 per cent of the total domestic output of book paper, are members of a statistical bureau, of which Charles F. Moore, of New York City, is secretary.

The concerted activities of the book-paper manufacturers, with the effect thereof upon the prices charged in 1916 and 1917, have been investigated and the commission has instituted a proceeding directed against certain practices which appear to exist in the industry.

CONTRACT AND CURRENT PRICES.

Contract and current prices of several grades of book paper were obtained from manufacturers, jobbers, and publishers for 1915 and 1916. The increase in contract prices is shown by the tabulation below, which gives the average prices of 23 principal manufacturers for deliveries in the territory north of and including Virginia, West Virginia, Kentucky, and Missouri, and east of and including Missouri, Iowa, and Minnesota:

Average net prices of 23 principal manufacturers in the United States on contracts with publishers and jobbers for delivery of white book paper at purchasers' sidewalk, 1915 and second half of 1916.

[Per 100 pounds for all quantities.]

	1915	1916, second half.	Increase.	Percentage of increase.
Machine finish:				
Eastern manufacturers.....	\$3.61	\$6.46	\$2.85	79
Western manufacturers.....	3.60	7.03	3.43	95
Eastern and western combined.....	3.60	6.66	3.06	85
Supercalendered:				
Eastern manufacturers.....	3.60	5.91	2.31	64
Western manufacturers.....	3.58	6.95	3.37	94
Eastern and western combined.....	3.60	5.97	2.37	66
Coated:				
Eastern manufacturers.....	4.92	8.13	3.21	65
Western manufacturers.....	4.82	7.97	3.15	65
Eastern and western combined.....	4.87	8.05	3.18	65

The increase in the current or open-market prices of machine finish, supercalendered and coated book paper in 1916 over 1915 is shown by the tabulation following:

Average net prices paid by principal publishers in New York, Boston, Philadelphia, and Chicago for white book paper at purchasers' sidewalk on open-market purchases, 1915 and 1916.

[Per 100 pounds in less-than-carload lots.]

	1915		1916		Increase, fourth quarter, 1916, over fourth quarter, 1915.	Percentage of increase
	First quarter.	Fourth quarter.	First quarter.	Fourth quarter.		
Machine finish:						
New York.....	\$3.92	\$4.07	\$4.42	\$7.55	\$3.48	86
Boston.....	4.25	4.22	4.45	7.54	3.32	79
Philadelphia.....	3.81	3.98	4.42	7.27	3.29	83
Chicago.....		3.94	4.40	8.32	4.38	111
Supercalendered:						
New York.....	3.71	3.62	3.88	6.54	2.92	81
Boston.....	4.32	4.29	4.54	8.49	4.20	98
Philadelphia.....	5.07	4.50	5.40	8.49	3.99	89
Chicago.....		3.87	4.03	6.77	2.90	75
Coated:						
New York.....	5.96	5.34	5.30	8.26	2.92	55
Boston.....	5.39	5.60	5.69	8.61	3.01	54
Philadelphia.....	6.35	5.89	7.01	8.29	2.40	41

COST OF MANUFACTURE.

Cost figures were obtained by accountants of the commission directly from the books of most of the large book-paper manufacturers in the United States. These figures were revised so as to eliminate intercompany and transfer profits on materials and interest charges and also so as to obtain a fair depreciation charge.

The cost of manufacture of all the book-paper mills covered by the investigation with one exception was higher in 1916 than in 1915. In some mills the increase in cost was small, while in others it was large. This is shown by the following tabulation, which gives a comparison of the factory cost per ton in 1915 and 1916 of the two mills having the highest and lowest cost, respectively, in 1916 and also a comparison of the average cost per ton for the two years of 39 principal book-paper mills making more than 80 per cent of the total domestic output.

Comparison of factory costs of principal book-paper mills per ton of paper, 1915 and 1916

[Net tons of 2,000 pounds.]

	1915	1916	Increase, 1916 over 1915.	Percentage of increase.
Mill having lowest cost in 1916.....	\$53.99	\$55.11	\$1.12	2.1
Mill having highest cost in 1916.....	77.85	97.32	19.47	25.0
Average cost of 39 mills.....	62.24	69.87	7.63	12.3

The above costs include a depreciation charge, amounting on the average to about 5 per cent on the investment in depreciable property, and other overhead expenses, but exclude interest charges.

transfer profits on soda pulp and sulphite which several of the companies produced themselves. Soda pulp, sulphite, and waste paper are the principal materials used in making book paper. They usually constitute from 50 to 60 per cent of the total cost of production.

Generally speaking, the smallest increases in cost occurred in mills which produced their own pulp and the largest in mills which purchased it. Some mills purchasing their pulp, however, secured their supplies for most of 1916 at fairly normal prices, but have paid much higher prices recently. The average cost of producing soda pulp, including depreciation, for nine companies operating 16 mills was \$35.06 per ton in 1915 and \$36.97 in 1916, an increase of only \$1.91 per ton. Likewise, the average cost of producing sulphite for six companies operating nine mills was \$39.12 per ton in 1915 and \$40.12 in 1916, an increase of only \$1 per ton.

In comparison with these costs of sulphite and soda pulp to the companies which produced them are the prices paid by the companies which had to purchase these materials. The following tabulation shows the average price per ton paid by certain book-paper mills in 1915 and 1916:

	1915	1916	Increase.
Soda pulp (17 mills).....	\$42.87	\$45.83	\$2.96
Sulphite (20 mills).....	51.16	56.61	5.45

The highest average price of soda pulp purchased by any of these companies in 1916 was \$53.41 per ton, and the highest average price of sulphite purchased was \$66.49 per ton. Recently prices above \$75 and \$100 per ton have been charged on the open market for soda pulp and bleached sulphite, respectively, with no proportional increase in the cost of production.

Of the 39 principal book-paper mills for which the average cost of book paper is given above, 29 mills, representing about 80 per cent of the tonnage, had a cost below \$70 per ton in 1915 and below \$80 per ton in 1916. A distribution of the 39 mills, according to costs in 1915 and 1916, is shown by the following tabulation:

	Number of mills.	
	1915	1916
Between \$50 and \$60.....	9	6
Between \$60 and \$70.....	20	6
Between \$70 and \$80.....	8	17
Between \$80 and \$90.....	2	8
Above \$90.....		2
Total.....	39	39

The wide variation existing in the costs of the principal book-paper mills is due not only to differences in efficiency but also to differences in the grades and specifications of book paper manufactured.

The above cost figures for book-paper do not cover the cost of coating, which is done in separate mills. Six of the companies whose costs were obtained operated coating mills. The average factory cost for coated paper, including depreciation, of the six mills

operated by these six companies in 1916, was \$95.65 per ton, as compared with \$77.99 per ton in 1915, an increase of \$17.66 per ton, or 22.64 per cent. In computing these costs the machine-finish paper used for coating is charged in at cost.

Cost figures for the first quarter of 1917 were obtained from 24 important book-paper mills in the United States. The average cost of these mills, including depreciation, was \$65.96 per ton in 1916 and \$83.31 for the first three months of 1917, an increase of \$17.35, or more than 26 per cent.

PROFITS OF MANUFACTURE.

The average profits per ton of the principal book-paper mills increased about 100 per cent in 1916, as compared with 1915, showing that in general average receipts at the mill increased more rapidly than costs. Some mills showed excessively large profits in 1916, while the profits of others were only moderate. The tabulation following gives a comparison of the net receipts, costs of sales, including selling expense, and profits per ton in 1915 and 1916 of the two mills showing the lowest and the highest profits, respectively, in 1916 and also a comparison of the average net receipts, costs of sales, and profits of the 39 principal book-paper mills for the two years:

Net receipts, cost of sales and selling expenses, and profits per ton of 39 principal book-paper mills, 1915 and 1916.

	Net receipts per ton.		Cost of sales and selling expenses per ton.		Profit per ton.		Per cent of profit on net sales.	
	1915	1916	1915	1916	1915	1916	1915	1916
Mill with lowest profit in 1916.....	\$65.85	\$83.08	\$61.07	\$77.53	\$4.78	\$5.55	7.4	6.7
Mill with highest profit in 1916.....	\$2.06	\$26.91	\$2.48	\$9.38	\$9.58	\$46.53	11.7	34.0
Average, 39 mills.....	71.39	86.83	63.09	70.32	8.30	16.51	11.6	19.0

The commission secured the book investment of the 21 companies operating the 39 mills, and it was found that the book investment was fairly representative of the cost of investment. On the basis of the book investment, the average profit of these companies on all of their operations was 8.7 per cent in 1915 and 21.5 per cent in 1916.

The wide variation in the profits of the principal book-paper mills is shown by the following tabulation, which classifies the 39 mills according to profits per ton:

	Number of mills.	
	1915	1916
Less than \$5.....	14	1
Between \$5 and \$10.....	12	3
Between \$10 and \$15.....	7	13
Between \$15 and \$20.....	5	7
Between \$20 and \$25.....	1	4
Between \$25 and \$30.....	0	4
Between \$30 and \$35.....	0	5
Above \$35.....	0	2
Total.....	39	39

The average profits of the six coating mills, whose costs are given above (p. 14), were \$16.89 per ton in 1915 and \$23.26 per ton in 1916, an increase of \$6.37 per ton, or 37.7 per cent.

The profits of 24 important book-paper mills were obtained for the first quarter of 1917. The average profit of these mills in 1916 was \$16.55 per ton, and in the first three months of 1917 \$37.21 per ton, an increase of \$20.66, or about 125 per cent. The percentage of profit on net sales for these mills was 14.6 per cent in 1915, 20.1 per cent in 1916, and 30.8 per cent in the first quarter of 1917.

JOBBER'S MARGINS OF PROFITS.

A considerable proportion of the domestic output of book paper is sold through jobbers. Some mills handle all of their sales in this manner. Agents of the commission obtained the purchase price and selling price of most of the important jobbers handling book paper. These figures showed that in 1916 jobbers generally obtained a larger margin of profit than in 1915. The tabulation below shows the average margin of profit on open-market sales of machine finish, supercalendered, and coated book paper of the principal jobbers in Boston, New York, and Chicago for the third and fourth quarters of 1915 and first and fourth quarters of 1916. The data obtained from jobbers in Philadelphia, Baltimore, Rochester, Cleveland, and other large cities show similar increases.

Average gross margins of profit on open-market sales of machine finish, supercalendered, and coated book paper by jobbers in Boston, New York, and Chicago, 1915 and 1916.

[Per 100 pounds in less-than-carload sales for direct shipment from mill to customer.]

	1915		1916		Increase, fourth quarter, 1916, over third quarter, 1915.	Percentage of increase.
	Third quarter.	Fourth quarter.	First quarter.	Fourth quarter.		
Machine finish:						
Boston.....	\$0.36	\$0.48	\$0.56	\$2.13	\$1.77	492
New York.....	.30	.30	.44	.80	.60	200
Chicago.....	.31	.35	.40	.94	.63	203
Supercalendered:						
Boston.....	.38	.49	.80	.49	.11	29
New York.....	.49	.41	.61	.77	.28	57
Chicago.....	.28	.30	.48	.99	.71	254
Coated:						
Boston.....	.48	.51	.64	.73	.25	52
New York.....	.48	.48	.61	.83	.35	73
Chicago.....	.49	.54	.73	1.05	.56	114

SUPPLY AND DEMAND FACTORS.

The production and shipments of 22 principal book-paper manufacturers operating 42 mills in 1915 and 1916 were as follows:

	1915	1916	Increase.	Percentage of increase.
	Tons.	Tons.	Tons.	
Production.....	672,419	803,227	130,808	19.4
Shipments.....	677,809	824,561	146,762	21.7

The stocks of these mills declined from 40,802 tons on December 31, 1915, to 20,938 tons on December 31, 1916, a decline of about 50 per cent.

The exports of book paper, as reported by the Bureau of Foreign and Domestic Commerce, increased from 15,632 net tons in the fiscal year 1915 to 64,601 tons in the fiscal year 1917, or more than 310 per cent. The total tonnage exported in 1917, however, amounted only to about 6 per cent of the total production.

Imports of book paper declined from 2,268 net tons in the fiscal year ending June 30, 1915, to 397 tons in the fiscal year 1917. The imports of bleached and unbleached chemical pulp from Norway, Sweden, and Germany also declined in 1916. The imports of unbleached wood pulp from these countries fell from 210,201 tons in the fiscal year 1915 to 119,473 tons in the fiscal year 1916, and then increased to 221,635 tons in the fiscal year 1917. The imports of bleached chemical pulp from these countries decreased from 96,763 net tons in the fiscal year 1915 to 43,124 tons in the fiscal year 1917. There was a considerable increase in imports of both bleached and unbleached chemical wood pulp from Sweden in the fiscal year 1917.

The increase in the domestic consumption of book paper in 1916 is indicated by the fact that 129 publications in New York, Boston, Philadelphia, Cleveland, and Chicago printed over 7,000,000,000 more pages in 1916 than they did in 1915, which was an increase of 17 per cent. The increase in 1916 over 1915 of 17 per cent was due both to an increase in circulation and an increase in the number of pages per issue. The increase in the number of pages per issue in turn was due chiefly to the increase in the quantity of advertising matter printed. The 129 publications printed 5,000,000,000 more pages of advertising in 1916 than in 1915, which represented an increase of 29 per cent.

ACTIVITIES OF MANUFACTURERS.

The investigations of the commission disclosed that the book-paper manufacturers, especially those belonging to the bureau of statistics, by correspondence, meetings, and in other ways have kept one another informed of market conditions, prices, etc., so that prices were advanced simultaneously without fear of competition.

While ostensibly the duties of the secretary of the bureau of statistics have been to compile and distribute certain statistical information, in reality his principal efforts have been devoted to encouraging members to increase their prices. This was done by correspondence, use of telephone and telegraph, attending meetings, and holding personal conferences with members.

CONCLUSIONS.

The foregoing findings of fact support the conclusion that the advance in the prices of book paper in 1916 was excessive and not justified either by the increase in cost or by the changes in conditions of supply and demand. The advance was brought about in part by the activities of the members and secretary of the bureau of statistics.

RECOMMENDATIONS.

In its preliminary report of this investigation, the commission recommended as a war emergency measure that all print paper mills and distributing agencies operate on Government account during the continuation of the war and that the total product be pooled in the hands of a governmental agency so that it might be equitably distributed at a fair price based upon cost of production and a reasonable profit per ton. These recommendations the commission wishes to renew, since it believes that under existing abnormal conditions immediate relief to publishers can only be obtained by the adoption of some such legislation.

The commission also desires to call the attention of the Congress to the necessity for the enactment of legislation regulating the activities of trade associations. The print paper and other investigations of the commission show that trade associations, although they are presumed to be organized for legitimate purposes and are often engaged in activities which serve a useful purpose, nevertheless, in some instances, engage in practices which tend to destroy competition and defeat the objects of the Sherman law.

The commission's print-paper investigations show that the activities of the trade associations connected with the news print and book paper industries, have contributed to the rise in price of these commodities, and that the effective regulation and supervision of such activities by some governmental agency would tend to restore healthy competition in these industries and thereby to reduce prices to a more normal basis.

Respectfully submitted.

WILLIAM J. HARRIS, *Chairman.*
JOSEPH E. DAVIES,
WILLIAM B. COLVER,
JOHN FRANKLIN FORT.

CHAPTER I.

PRODUCTION, DISTRIBUTION, AND CONSUMPTION OF BOOK PAPER.

Section 1. INTRODUCTION.

The investigation of the book-paper industry was made by the commission pursuant to the following resolution adopted by the Senate on September 7, 1916:¹

Resolved, That the Federal Trade Commission be, and the same is hereby, directed to investigate the increase in the prices of the various kinds of paper required for printing and binding during the last year, and to ascertain and report, at as early a date as practicable, whether there have been any violations of the antitrust acts by any corporation in connection with such advance in prices, with special reference to the prices demanded for paper necessary for the public printing and binding, and also whether or not the paper so used was manufactured in the United States or imported from the Dominion of Canada.

Scope of investigation.—Having already conducted an investigation of news-print paper, which is the chief grade of printing paper used, the commission confined the present investigation to book paper, which embraces practically all of the grades of printing paper except news print.

Data regarding prices, jobbers' profits, and manufacturers' costs and profits were obtained by the commission's accountants and agents directly from the records of the principal manufacturers, jobbers, and publishers. An examination was also made of the correspondence files of some of the principal manufacturers and jobbers in order to ascertain whether there had been any violations of law. Statistics of advertising and circulation were furnished by the larger publishers using book paper, as well as other information of value in connection with the investigation.

Grades of book paper.—Book paper is a general term designating roughly all of the grades of printing paper except news print. The distinction between book paper and news-print paper is that the former is made of chemical pulp while the latter consists largely of ground wood or mechanical pulp. Standard news-print paper contains usually about 80 per cent of ground wood and 20 per cent of sulphite. Between standard news-print and book paper there are various grades of paper containing more or less ground wood, such as half-tone news, special news, novel news, catalogue news, etc.

The principal grades of book paper are machine finish (M. F.), sized and supercalendered (S. & S. C.), coated, and cover. The difference in the first three grades lies mainly in the finish given the paper. Cover paper is a strong, heavy grade which is usually coated. It is used mainly for the covers of magazines, catalogues, etc. Within

¹Senate resolution No. 209, 64th Cong., 1st sess.

each of these grades there are numerous variations in the specifications for size, weight, color, etc.

Machine-finish book paper goes through practically the same process of manufacture as news print. The only finish given is that obtained by passing it through the calender rolls as it comes off the paper machine. Some variation in finish is possible, however. Several of the different finishes classed as machine finish are laid, wove, English finish, high bulk, eggshell, etc. "Laid" denotes certain markings on the sheet consisting of prominent vertical watermark lines wide apart, and smaller horizontal lines closer together. "Wove" is ordinary machine finish, with fine equidistant markings. "English finish" denotes a dull surface, and, in the United States, covers a number of finishes, all of a high quality. "High bulk" is a thick blotter-like paper, which has not been greatly compressed. "Eggshell" is a rough finish in imitation of an eggshell surface. These different finishes are made by rollers of different designs while the paper is still moist. Machine finish paper is used largely by publishers of books, and for catalogues, etc.

Sized and supercalendered paper is machine finish paper which has gone through an additional process of sizing and calendering to give it a hard, smooth finish. A large part of this kind of paper is used by publishers of illustrated magazines.

Coated paper is machine finish paper coated with a paste made of clay, casein, starch, and other materials, and then calendered to produce a high finish. It is usually coated on both sides, but is sometimes coated on one side only. It is used chiefly for high-grade illustration and lithographic work.¹

Methods of packing.—Book paper is furnished by the manufacturers either in rolls or sheets. Roll paper is used largely by publishers of magazines and periodicals, and sheet paper is used by publishers of books and for miscellaneous purposes. Sheet paper is packed for shipment in several ways. The more important are lapped, interlapped, framed, and cased. The difference in price on account of packing is sometimes as much as 20 or 25 cents per 100 pounds. The most expensive packing is in cases. High-grade coated paper is usually packed in this way to protect the high finish of its surface.

Principal uses.—Book paper is used by hundreds of periodicals and magazines, including women's publications, mail-order journals, religious, class, trade and farm papers, and also by publishers of books and music. It is also used in the manufacture of school pads, cheap writing papers and envelopes. Large quantities are used by soap manufacturers for wrappers, since they must have a paper that will not be affected by the alkali in the soap. It is also used for wrapping purposes by druggists, chemical and patent-medicine manufacturers, and for lining and covering fancy paper boxes. Most catalogues issued by manufacturers are printed on book paper, and many of those issued by mail-order houses and others are printed either wholly or in part on book paper.

Classes of publishers.—There are some 6,000 publications in the United States using book paper. They include a few daily and weekly newspapers and most of the monthly and weekly publications

¹ For a full description of the process of manufacture and grades of book paper, see pp. 25, 30.

of general circulation (magazines and weeklies, women's publications of home circulation, mail-order publications), religious, farm, class and trade, and secret-society publications. The publication of periodicals other than newspapers is largely confined to a few large cities, especially New York, Chicago, Boston, and Philadelphia. Cincinnati and Nashville are also important centers for religious publications. The number by classes of these publications on January 1, 1917, was about as follows:

Class and trade publications.....	4,200
Religious.....	850
Farm.....	500
Secret society.....	250
Publications of general circulation:	
Magazines.....	117
Women's publications.....	39
Mail-order publications.....	29
	<hr/> 185
Total.....	5,985

Of the publications of general circulation 106 magazines have a combined circulation of more than 23,500,000, 37 women's publications about 24,500,000, and 28 mail-order publications about 16,000,000. Of the 850 religious publications 38 have a circulation of more than 100,000 each, and 49 of the 500 farm journals exceed 100,000. The circulation of very few secret-society or class and trade publications exceed that figure.

The largest consumers of book paper are the publishers of certain weekly and monthly magazines. Several of these concerns use more than 10,000 tons a year each. During the year 1916, 28 of the largest publishing concerns entered into contracts for 122,158 tons of supercalendered paper.

Sale of book paper.—Book paper is sold by the manufacturers and jobbers either on contract or in the open market. The contracts usually run from a few months to a year or more. Very few, however, cover more than one year.

The manufacturers sell part of their output directly to the consumer and part to jobbers. Manufacturers east of the Pennsylvania-Ohio line sell most of their paper directly to the consumer, while those west of the Pennsylvania-Ohio line and east of the Mississippi sell most of theirs to jobbers. Taking the country as a whole, the data secured from the manufacturers show that the machine finish and coated grades under contract were sold largely to jobbers, while a very large proportion of the supercalendered paper was sold directly to publishers. In fact, most of the important magazines use supercalendered, which is bought directly from the manufacturers on annual contracts. Book publishers and the smaller commercial users generally buy from jobbers and frequently in the open market.

Section 2. PRINCIPAL BOOK-PAPER MANUFACTURERS.

There were in 1916 approximately 40 companies operating 70 mills, the bulk of whose output was book paper, and a number of other mills which manufactured some book paper in addition to various other grades. The output of the principal book-paper mills in 1916, including such other grades as were made, probably aggregated more than a million tons, valued at more than \$87,000,000.

The principal book-paper mills are located largely in the northeastern and north central portions of the United States. There are no important book-paper mills in the States south of Virginia and West Virginia or west of Minnesota, except the Everett Pulp & Paper Co., located at Everett, Wash.

The largest book-paper manufacturer is the West Virginia Pulp & Paper Co., which has 15 pulp and paper mills located in Virginia, West Virginia, Pennsylvania, and New York. Next in order of importance are S. D. Warren & Co., Crocker, Burbank & Co., Oxford Paper Co., Kimberly-Clark Co., Bryant Paper Co., and New York & Pennsylvania Co. The number of paper and pulp mills operated by the largest manufacturers and the rated capacity of the book-paper mills of each company are shown by Table 1.

TABLE 1.—*Number of soda pulp, sulphite, and paper mills and daily capacity of book-paper mills operated by 15 largest book-paper manufacturers, 1916.*

Company.	Number of soda-pulp mills.	Number of sulphite mills.	Number of paper mills.	Rated capacity of book-paper mills.
West Virginia Pulp & Paper Co.....	4	3	8	590
S. D. Warren & Co.....	2		2	200
Crocker, Burbank & Co.....			8	200
Oxford Paper Co.....	1	1	1	180
Kimberly-Clark Co.....		2	7	175
Bryant Paper Co.....			4	150
New York & Pennsylvania Co.....	3	1	2	130
Champion Coated Paper Co. ¹	1	1	3	130
Mead Pulp & Paper Co.....	1		2	82
Miami Paper Co.....			1	80
King Paper Co.....			1	60
Jessup & Moore.....	2		3	60
Ticonderoga Pulp & Paper Co.....	1		2	52
M. & W. H. Nixon Paper Co.....			1	50
Nashua River Paper Co.....			2	50
Total.....	15	8	47	2,189

¹ Including Champion Fiber Co.

The companies shown in the above table have a rated daily capacity of 50 tons or more of book-paper production. In addition most of them make other grades of paper. The capacity of the West Virginia Pulp & Paper Co. is greater than that of the three next largest companies. It makes a specialty of supercalendered book paper for magazines, and in fact is financially interested in several publications which it supplies, the most important of which is Collier's Weekly. By making a large tonnage of a particular grade it is able to run its machines continuously and thereby to produce at a lower cost. The Oxford Paper Co., New York & Pennsylvania Co., and Ticonderoga Pulp & Paper Co. also make a specialty of

supercalendered paper for magazines. Crocker, Burbank & Co. sell most of their output to the Curtis Publishing Co. In 1916 the various Curtis publications, including the Saturday Evening Post, Country Gentleman, Ladies Home Journal, etc., used more than 50,000 tons of machine finish, supercalendered and cover paper, which was about 80 per cent of the total output of the eight mills operated by the Crocker, Burbank Co.

Bureau of Statistics.—Twenty-three book-paper manufacturers, including all of the large ones, except Crocker, Burbank & Co., Jessup & Moore, and Nashua River Paper Co., are members of a statistical bureau organized in 1914. The secretary of this bureau is Charles F. Moore, the Vanderbilt Hotel, New York City. Mr. Moore was formerly connected with the West Virginia Pulp & Paper Co.

The names, addresses, and rated capacity of the members of the statistical bureau are as follows:

Name.	Address.	Daily tonnage.
Eastern:		
American Writing Paper Co.....	Holyoke, Mass.....	42
Dill & Collins Co.....	140 North Sixth Street, Philadelphia, Pa.....	42
Diana Paper Co.....	Harrisville, N. Y.....	30
New York & Pennsylvania Co.....	200 Fifth Avenue, New York City.....	130
M. & W. H. Nixon Paper Co.....	Manayunk, Philadelphia, Pa.....	50
Oxford Paper Co.....	200 Fifth Avenue, New York City.....	180
Ticonderoga Pulp & Paper Co.....	do.....	62
Tileston & Hollingsworth Co.....	49 Federal Street, Boston, Mass.....	28
Wanaque River Paper Co.....	Wanaque, N. J.....	24
S. D. Warren & Co.....	120 Franklin Street, Boston, Mass.....	200
West Virginia Pulp & Paper Co.....	200 Fifth Avenue, New York City.....	500
Western:		
Bardoon Paper Co.....	Otsego, Mich.....	25
Bergstrom Paper Co.....	Neenah, Wis.....	35
Bryant Paper Co.....	Kalamazoo, Mich.....	150
Champion Coated Paper Co.....	Hamilton, Ohio.....	130
Everett Pulp & Paper Co.....	Everett, Wash.....	34
Kimberly-Clark Co.....	Neenah, Wis.....	175
King Paper Co.....	Kalamazoo, Mich.....	60
Lakeside Paper Co.....	Neenah, Wis.....	8
Mead Pulp & Paper Co.....	Dayton, Ohio.....	82
Miami Paper Co.....	West Carrollton, Ohio.....	80
Monarch Paper Co.....	Kalamazoo, Mich.....	35
Rex Paper Co.....	do.....	15
Total tonnage.....		2,197

The book-paper manufacturers belonging to the statistical bureau produce about 75 per cent of the total output of book paper. They furnish the statistical office each month with a statement of production, shipments, stocks on hand, unfilled orders, etc., which are compiled by the secretary and sent out to members. These figures give the members a very good indication of the condition of the market. Other activities of the organization are discussed in Chapter IV.

Production, shipments, and stocks.—Table 2 below gives the tons produced, tons shipped, and stocks on hand of the 23 book-paper manufacturers belonging to the statistical bureau, by months, since January 1, 1915. These figures were furnished the commission by the secretary of the bureau.

TABLE 2.—*Production, shipments, and stocks on hand of 23 book-paper manufacturers belonging to the Bureau of Statistics, by months, 1915-1917 (first half)*

Date.	Tons produced.	Tons shipped.	Stocks on hand at end of month.
1915.			
January.....	45,725	45,107	40,709
February.....	45,081	43,776	41,923
March.....	49,493	49,754	41,444
April.....	49,350	48,187	42,736
May.....	46,380	46,581	42,515
June.....	46,976	45,425	43,720
July.....	46,213	46,694	43,626
August.....	48,269	48,720	43,248
September.....	48,535	49,512	40,461
October.....	51,566	53,461	39,709
November.....	53,027	54,415	38,345
December.....	54,769	58,126	35,508
Total.....	585,384	589,758	35,508
1916.			
January.....	54,639	56,759	33,267
February.....	54,200	57,895	30,697
March.....	61,950	68,520	24,852
April.....	57,785	61,492	20,473
May.....	60,392	60,525	20,340
June.....	60,015	61,728	18,479
July.....	55,254	55,858	17,868
August.....	62,453	62,526	17,862
September.....	59,090	58,800	18,175
October.....	61,471	62,406	17,242
November.....	63,888	62,214	18,989
December.....	60,200	62,254	16,730
Total.....	711,337	730,977	16,730
1917.¹			
January.....	66,549	64,469	18,836
February.....	59,293	57,615	20,314
March.....	65,272	66,004	19,398
April.....	58,397	54,927	22,324
May.....	61,391	59,171	24,412
June.....	56,661	53,652	25,331
Total.....	367,563	355,838	25,331

¹ In July the members of the Bureau of Statistics produced 48,664 tons, shipped 45,361 tons, and had on hand at the end of the month 29,260 tons. In August the production of the members of the Bureau of Statistics amounted to 57,582 tons, shipments to 56,153 tons, and stocks on hand at the end of the month to 30,623 tons.

The table shows that production and shipments began to increase and stocks to diminish in the fall of 1915, and with some slight reactions this trend continued throughout the year 1916. Since January 1, 1917, the trend appears to have changed and stocks have begun to increase. The total production of the 23 companies increased from 585,384 tons in 1915 to 711,337 tons in 1916, or 21.5 per cent; shipments increased from 589,758 tons in 1915 to 730,977 tons in 1916, or 23.9 per cent; stocks declined from a maximum of 43,720 tons on June 30, 1915, to 16,730 on December 31, 1916. Since this date they have increased to 25,331 tons, June 30, 1917; 29,260 tons, July 31, 1917; and 30,623 tons, August 31, 1917.

Statistics collected by the commission from 22 companies operating 42 mills, some of which were not members of the Bureau of Statistics, showed the following production and shipments in 1915 and 1916:

	1915	1916	Increase.	Percent- age of increase.
Production.....	<i>Tons.</i> 672,419	<i>Tons.</i> 903,227	<i>Tons.</i> 130,808	19.4
Shipments.....	677,809	824,561	146,762	21.7

The stocks of these mills declined from 40,802 tons on December 31, 1915, to 20,938 tons on December 31, 1916, a decline of about 50 per cent during the year 1916.

Section 3. PROCESS OF PRODUCTION.

All paper is manufactured by dissociating the cellulose or fibrous portions of various plants and felting them together into the kind of sheet desired.

The body stock used in the manufacture of book paper is made up chiefly of chemically prepared wood pulp, waste paper, and occasionally a small quantity of rags. Ground-wood pulp also is used in varying quantities by some mills in making the cheaper grades of book paper. Various chemical substances are employed for sizing, loading, and coloring the paper.

The following table shows the materials, exclusive of colors and some miscellaneous items, used in 1916 in the manufacture of book paper by three eastern mills making their own pulp and five Michigan mills buying all of their pulp:

TABLE 3.—Quantities and proportions of materials, exclusive of colors and some miscellaneous items, used in 1916 by 3 eastern and 5 Michigan companies.

Materials.	Three eastern companies (production, 291,953 tons).			Five Michigan companies (production, 89,015 tons).		
	Quantity.	Pounds used per ton of paper produced.	Proportions of materials used.	Quantity.	Pounds used per ton of paper produced.	Proportions of materials used.
	<i>Tons.</i>		<i>Per cent.</i>	<i>Tons.</i>		<i>Per cent.</i>
Soda pulp.....	138,910	952	40.1	6,949	156	5.7
Sulphite.....	120,730	827	34.9	26,140	587	21.7
Waste paper.....	10,063	69	2.9	71,031	1,596	58.9
Clay, agalite, and talc.....	67,223	460	19.4	9,885	222	8.2
Alum.....	5,980	41	1.7	4,851	109	4.0
Rosin.....	3,310	23	1.0	1,799	41	1.5
Total.....	346,216	2,372	100.0	120,655	2,711	100.0

¹ Includes a small proportion of rags.

The tabulation displays extreme variation between the two groups of mills with respect to the proportion of the various materials used. Chemical wood pulp constitutes 75 per cent of the materials included in the tabulation for the eastern mills and only 27.4 per cent for the Michigan mills. Waste paper, on the other hand, makes up 58.9 per cent in the Michigan mills and only 2.9 per cent in the eastern. The eastern mills, compared with the Michigan mills, use a relatively higher proportion of soda pulp as compared with sulphite. They

also use a greater proportion of "fillers" (clay, agalite, and talc) and less "size" (rosin).

The eastern companies included in the tabulation have their own pulp mills, and make a grade of paper used largely by periodicals, while the five Michigan mills depend upon the market to supply their raw materials, and manufacture mainly specialized products requiring a variety of materials rather than the continuous supply of certain ones which would be afforded if they owned their own pulp mills. Proximity to market, availability of materials, and the securing of good manufacturing conditions are the factors considered in locating such mills. No individual mill, of course, would use identically the proportions exhibited in the tabulation. It shows merely aggregate and average figures.

Preparation of pulpwood.—Wood fiber is the most important paper-making material. Spruce, poplar, and hemlock are used chiefly, but many other varieties are used in addition. Wood to be used for making paper is usually cut into 2-foot lengths and barked with a tumbler or a rosser. The former is a large cylindrical drum, installed so as to revolve in a sloping position in water. The logs are passed through the revolving tumbler, and the friction of the logs against one another and against the side of the drum removes the bark. The second type consists of a heavy iron disk, provided usually with three knives fixed to its surface and projecting about half an inch from it. The disk is rotated rapidly, and when the logs are pressed against its surface the bark is shaved off by the knives.

Following this the wood is chipped into small pieces by a machine which consists of a heavy iron or steel disk about 84 inches in diameter, with two or three steel knives projecting from its surface and radiating from the center. This disk is caused to revolve rapidly, and the logs are applied to the surface of the disk, usually at an angle of about 48 degrees. The knives then chip off flakes of wood from the end of the log at that angle.

In its natural state wood contains considerable nonfibrous material in addition to the cellulose or fiber, which is the material of use in paper making. This nonfibrous material, chiefly ligneous and resinous in its composition, is dissolved by some chemical which does not attack the cellulose. Practically all wood pulp used in the manufacture of book paper is produced by one of two chemical processes, the sulphite or the soda process.

The sulphite process.—In the sulphite process the wood chips are cooked under pressure with a solution of bisulphite of lime, which is prepared either by the tower system or the tank system. In the tower system, which is in most general use, sulphur, or in some cases pyrites, is burned in specially constructed ovens with a limited supply of air so as to form sulphur dioxide gas. This is run out in pipes through a tank of water to cool the gas and into tall towers, usually of wood, with a lining of lead or acid-resisting brick. These towers may be considerably over 100 feet in height and from 5 to 10 or more feet in diameter. Limestone in small blocks fills up the tower and rests on wooden beams about 10 feet from the bottom of the tower. A continuous stream of water is introduced from the top of the tower. As the gas passes upward through the limestone it enters into combination with the water and lime, so that the liquid flowing out at the bottom is a solution of bisulphite of lime.

In the tank system, otherwise called the milk-of-lime system, water and lime are mixed in a large vat, and the sulphur-dioxide gas is forced into the mixture to form bisulphite of lime. The process varies in detail, of course, from plant to plant.

The chemical process of making sulphite is conducted in large boilers, commonly called digesters. These may be of varying type, but the one in almost universal use is a tall cylindrical vessel, sometimes of sufficient size to produce from 11 to 16½ net tons of pulp. The digesters are constructed of boiler plate and are lined with acid-resisting brick or tile set in acid-proof mortar. This, of course, is to prevent the acid developed in the process from corroding the metal of which the digester is constructed, but has also the further advantage of effecting a considerable saving in steam, because of the fact that this lining acts as a heat insulator. The digesters are rounded at the top and taper to a cone at the bottom.

The process of cooking varies considerably in different plants. In general, after the chips of wood and the bisulphite of lime have been introduced, steam is forced in gradually at the bottom. The pressure reaches about 80 pounds and the temperature about 325°F. The process of cooking is continued about eight hours. At the end of the cooking process the outlet at the bottom of the digester is opened, and the steam pressure quickly forces the material out into a large bin with a screen bottom, through which the liquid drains off. At this point the pulp is washed usually for about three hours by means of water delivered at the top of the bin. The ligneous and resinous portions of the wood, being in solution to a great extent, are washed away. Spruce-wood pulp obtained in this manner contains about 88 per cent of cellulose, while untreated spruce wood contains only about 55 per cent.

Most of the material other than the cellulose goes to waste. Considerable sulphur-dioxide gas is liberated when the mixture in the digesters is heated, and is used again in making bisulphite of lime. Alcohol is made from the waste liquor in some cases by adding a ferment and distilling in the ordinary way.

A considerable proportion of the sulphite pulp used in book paper is bleached by treating with a solution of chloride of lime.

The soda process.—In preparation for the soda process the wood usually is chipped finer than for the sulphite process. After being chipped it is cooked under pressure in a digester, with an alkaline solution to dissolve the nonfibrous portions. The prevailing type of digester is constructed of five-eighths inch plate steel, is of cylindrical shape with a rounded top and conical bottom, and its installation is in a stationary vertical position. The digesters usually are 28 feet high and 7 feet in diameter, and their capacity is 4 cords of wood and 3,500 gallons of liquor. The wood and the cooking material are introduced through a manhole at the top, and the wood rests on a circular screen stretched across the digester near the bottom. The manhole is closed and live steam is introduced between this screen and the bottom of the digester. The boiling is carried on at a gradually increasing pressure for about two hours, at the end of which time a maximum pressure of about 120 pounds is attained. This pressure is maintained for an additional eight hours, during which time a maximum temperature of 330° F. is reached. At the end of the cooking process the lower manhole is opened, and the

steam pressure blows the pulp and liquor into a pit below the digester. After being washed the pulp is screened and bleached in preparation for the paper-making process.¹

The material used in this process for dissociating the fibers is caustic soda. This material is produced commercially generally by treating a dilute solution of sodium carbonate with lime.

From 80 to 92 per cent of the alkali charged into the digester is recovered and used again in a subsequent operation.

The pulp is dumped from the blow pits under the digester into pans with fine screen bottoms. The liquor and the resinous and ligneous portions of the wood it holds in solution drain through the screen. Hot water is used to wash the pulp clean of the liquor. The solution is concentrated in evaporators to a tar-like consistency. This so-called black liquor then is fed into steel cylinders lined with fire brick, which are called incinerators. These are 14 feet long and 8 feet in diameter, are mounted horizontally on rolls, and revolve at the rate of two revolutions per minute. Heat is applied and causes the remaining liquor to be vaporized and the organic matter to be carbonized. The substance remaining is carbon and carbonate of soda, which comes out of the incinerators in solid form and is known as black ash. The black ash is leached with hot water which dissolves the sodium carbonate, and the solution is run into the causticizing tanks. Burned lime is added, which is slaked upon coming in contact with the water and then reacts with the sodium carbonate to form caustic soda, which then is used again in the production of pulp.

Use of waste paper.—A considerable quantity of fiber for paper making is derived from old paper. In the first place a considerable quantity of torn and otherwise unsalable paper accumulated in the mill is turned back into the beaters and used again for paper making. Trimmings and other clean waste paper are purchased from printers and publishers and used in the same manner. This kind of paper does not require any special treatment.

Printed papers also are used in large quantities by some mills, frequently in the form of old magazines. Much high grade rag paper is used in conjunction with wood pulp. The printing ink causes difficulty in the use of printed papers.

Black printing ink is composed generally of carbon, held in solution by an oil such as linseed oil or pine oil. When applied to the surface of the paper the volatile part of the oil evaporates, leaving an adhesive substance which holds the particles of carbon together and causes the whole mass to adhere to the paper. The problem in using old papers consists in dissolving the printing ink, and then in removing the pigment without soiling the mass of moist pulpy material with which it is mixed. The common procedure is to boil the paper with an alkaline solution, usually soda ash, which has the quality of breaking up the dried oil which holds together the pigments in the ink. It also attacks the rosin with which the paper is sized and thus helps to disintegrate the paper stock as a whole. Three types of machines are in general use: (1) rotary boilers, (2) open-air cookers, and (3) inclosed engine cookers. The open-air cooker is used

¹An excellent description of the process of manufacture of soda pulp and sulphite is found in Department of Commerce, Bureau of Foreign and Domestic Commerce, Special Agents Series, No. 110, By-Products of the Lumber Industry, by H. K. Benson, pp. 42-49.

most generally, and consists merely of a large tank in which the cooking liquor is allowed to boil up through pipes and thence pour out and settle down through the paper, thus insuring uniform treatment throughout the mass. The inclosed engine cooker is of various types. Sometimes a pressure of about 5 pounds is maintained. In some types a sort of beating action is communicated to the mass. Care must be exercised not to knead the ink into the fibers. A new type installed in one mill utilizes the action of rapidly turning propellers to drive the pulp through a pipe attached to the boiler, and the churning motion thus developed tends to remove the ink and disintegrate the fibers. Whatever the type of machine employed, the alkaline solution supporting the carbon particles must be washed out of the mass of pulp thoroughly. Then the pulp may be run into the beaters for a brief period and mixed with other stock in varying proportions.

Paper making.—The paper-making process proper begins in the beaters, where the various component substances of the finished product are mixed.

The beaters are large receptacles of various types, the important common characteristic of which is a cylindrical roll fitted with steel or bronze blades, which revolves over a stationary concave bedplate equipped with similar blades. The pulp is caused to circulate in the vat so that all of it will pass under this roll about an equal number of times. At the beginning of the operation the roll is raised slightly above the bedplate and then gradually lowered as the operation is continued, until the fibers have been sufficiently torn apart and the various ingredients have been thoroughly mixed.

The chemicals used are added to the pulp in the beaters. Clay, agalite, or talc are introduced as a filler. This material fills the spaces between the fibers, renders the paper more opaque, and gives it a smoother surface. If added to excess it causes the paper to be inferior in strength. Liquid rosin is added to size the paper so that the printing ink will not be absorbed and thus cause the impressions to become blurred. Coloring materials as desired are added. Alum also is introduced to precipitate the rosin and the coloring matter upon the fibers.

The beating process is very important in determining the quality of paper to be produced. In the first place the mixture of the materials is of extreme importance in this regard. Thus, a large proportion of soda pulp makes possible the production of a soft, artistic, opaque paper of good printing qualities. A large proportion of sulphite, on the other hand, insures strength and hardness. Extreme care must be exercised in the use of waste paper in order to produce a product of a given quality. In the second place, the beating process is extremely important from the mechanical point of view. If the roll is let down too rapidly or too far upon the bedplate the pulp may be spoiled. Experienced beater men are essential to produce the best results.

In some plants the beating process is shortened somewhat by the use of the so-called Jordan refining engine. This machine consists of a hollow cone equipped on its interior surface with blades and another smaller cone with blades on its exterior surface. The smaller cone revolves within the larger one, and the pulp is reduced to the desired consistency by the action of the blades.

After the beating process has been completed the pulp, mixed with a great quantity of water, is run into a so-called stuff chest, in which it is kept in constant motion to prevent the pulp from settling to the bottom. From this chest the slush passes through a strainer and into a long narrow box placed at the head of and across the full width of the paper machine. Thence it overflows onto a wire-screen belt woven with 60 or 70 meshes to the inch. The length of this screen may be well over 50 feet and the width 150 or more inches. This belt moves forward on a series of 3-inch rolls, and also has a lateral shaking motion. The pulp settles down upon this screen in the form of a wet sheet, much of the water draining through the mesh of the screen. Toward the farther end of the screen it passes over vacuum boxes, which cause still more moisture to be forced through the screen.

If it is desired to mark the paper in a distinctive manner, a dandy roll is placed above the vacuum boxes. This device consists of a cylindrical roll covered with raised wires in the form of the desired pattern. If a screen like the one supporting the sheet is used, the so-called wove paper is produced. Watermarks showing the trade name of the paper are sometimes used.

The screen may be run at 500 or more feet per minute. Mills manufacturing large quantities of a standardized product, such as magazine paper, usually have wide and fast machines, while those making up many special orders find smaller and slower machines more advantageous.

At the end of the screen the sheet passes between two rolls called the couch rolls, the upper one of which is covered with a felt jacket. From the screen belt the sheet runs onto a woolen belt. While supported by this belt it passes between a series of so-called press rolls, the purpose of which is to press out further quantities of water. The sheet then is run over a number of large, hollow cast-iron cylinders 3 or 4 feet in diameter, heated by steam. These rollers dry the paper thoroughly. The sheet is then passed between a series of smaller rollers, called calender rolls, to impart finish to the paper which is then wound upon a roll.

Finishing processes.—Three main types of surface finish are distinguished in the manufacture of book paper, i. e., machine finish, supercalendered, and coated. Machine-finish paper is ready to be packed and shipped when it leaves the paper machine. The other grades require additional treatment.

The finish imparted to the paper may be varied considerably in several different ways. The materials used in the paper will have some effect, and the use of the dandy roll on the paper machine makes possible other variations. Finally, the process of calendering in the paper machine may be varied considerably. So-called antique and wove papers are produced by very superficial calendering on the machine. A smooth paper with considerable polish may be produced by using two or three calendars on the paper machines.

If a particularly high finish is desired, the paper is run through the supercalendering machines. These consist of a series of alternating pressed paper or cotton and hollow iron rolls placed one over the other. The sheet is moistened with water or with a sizing solution containing gelatine and alum before it is passed through the calendering machine.

For printing illustrations it is generally necessary to procure paper with a surface still more smooth than can be produced by calendering. In such cases the paper is coated with a solution usually composed of clay mixed with casein to cause it to adhere to the paper. Starch sometimes is used in place of casein and blanc fixe (barium sulphate); satin white or other materials may be used in place of clay.

The coating machines are of various types. Sometimes it is desired to coat only one side of the paper. The sheet then is passed over a roller, where its transverse side comes into contact with a rotary brush, which applies the coating material. The material is then distributed over the surface thoroughly by several brushes that move back and forth against the sheet on its way up through the machine. It then passes over a roller at the top of the machine and is caught up on its uncoated side on a wooden bar, carried at either end by traveling chains, which carry the bar supporting the sheet to a point near the ceiling of the room. At this point the bar is suspended on two other traveling chains, moving at a much lower rate of speed than the rate maintained in the coating machine proper. As a result the sheet sags down nearly to the floor between each supporting bar, and in this festoonlike arrangement is transported slowly for a hundred feet or more. This allows several hundred feet of paper to be exposed to the drying effect of the air without necessitating that the coated side be touched until it is dry enough to be handled. It is then rolled up. It may be run back through the coating machine to coat the transverse side or it may be sold coated on one side only. Another type of machine makes possible the coating of both sides of the paper in one operation. The paper is passed up between two rollers, above which the coating material is applied. It is brushed on both sides to distribute the material evenly and then is carried on a blast of air for 100 feet or more until the lower side has dried sufficiently to allow the sheet being hung up on bars as described above.

After the coating material has been applied and dried the sheet is run through calendering machines to produce the desired finish.

Section 4. BOOK-PAPER JOBBERS.

Book paper is handled by a large number of jobbers throughout the country. All the larger cities have one or more jobbers, some of whom have branch houses at various points. Most of these jobbers carry various other lines of paper besides book paper, such as bond, writing, news print, wrapping, etc. Practically all the book paper handled by jobbers is bought and sold by them on their own account, very little being handled on a commission basis.

Some of the more important jobbers handling book paper, who furnished detailed information regarding prices and profits, and the location of their main offices, are—

Birmingham & Seaman Co., New York and Chicago.
 Bulkley, Dunton & Co., New York.
 W. F. Etherington & Co., New York.
 Perkins-Goodwin Co., New York.
 Perkins & Squier Co., New York.
 Arnold-Roberts Co., Boston.
 Carter, Rice & Co., Boston.
 Garrett-Buchanan Co., Philadelphia.
 Megargee-Hare Paper Co., Philadelphia.

Alling & Cory Co., Rochester, N. Y.
The Central Ohio Paper Co., Columbus, Ohio.
Union Paper & Twine Co., Detroit.
Beecher, Peck & Lewis, Detroit.
J. W. Butler Paper Co., Chicago.
Chicago Paper Co., Chicago.
The Paper Mills Co., Chicago.
Bradner, Smith & Co., Chicago.
Whitaker Paper Co., Cincinnati.
Louisville Paper Co., Louisville.
Graham Paper Co., St. Louis.

A much larger percentage of book paper is distributed through jobbers than is the case with news-print paper. In fact, some of the western manufacturers sell practically all their production through jobbers, and the eastern manufacturers also dispose of a large part of their open-market business in this way.

Book paper purchased in the open market is bought largely through jobbers, since they keep a great variety of grades, sizes, colors, etc., on hand, and in the large centers also maintain a delivery service. In some cases, jobbers carry hundreds of different items in stock, or can have them quickly delivered from the mills.

Most of the jobbers issue price lists from time to time. During 1916, when prices were rising, these lists were issued at frequent intervals.

The price lists issued by jobbers are of two kinds, one known as the net list, which is most generally used, and the other known as the long list, which is in use in Detroit and to a greater or less extent in Cleveland, Buffalo, Cincinnati, and Louisville. The net list gives the cash price less the usual discounts, while the long list is 25 per cent higher than the net list. The purpose of the long list is primarily to protect the printer. In cities where the long list is effective a consumer of printing paper other than a printer or publisher can not buy directly from the jobber except at the long-list price, while a printer or publisher gets a 20 per cent discount.

Carload sales by jobbers are practically all shipped direct from the mill to the customer. Quantities less than a carload but more than 1 ton may be shipped either from the mill or delivered from the jobber's warehouse. Less than ton lots are nearly all delivered from the jobber's warehouse. This usually results in a saving in freight to the buyer, since the jobber gets a carload rate on the paper from the mill to his warehouse. However, the expense of rehandling must then be taken into consideration.

Many publishers state that while the paper bought through a jobber may cost more than if bought direct, they consider that the convenience of having the jobber relieve them of the trouble of making the order and attending to the details of the transaction is worth the increased price.

Exclusive agencies.—A number of the more important jobbers have the exclusive agency in their localities for one or more manufacturers, but this does not prevent them from competing in localities where there is no representative. The J. W. Butler Paper Co. has the exclusive agency for the sale of S. D. Warren & Co.'s paper in western territory. The sales of paper by the West Virginia Pulp & Paper Co. for delivery in localities other than New York City and Chicago are made chiefly through the following jobbers: Alling & Cory Co., Rochester, N. Y.; R. P. Andrews Paper Co., Washington,

D. C.; Arnold-Roberts Co., Boston, Mass.; Carpenter Paper Co., Omaha, Nebr.; E. A. Bouer, Milwaukee, Wis.; Chatfield & Woods Co. Cincinnati, Ohio; and Graham Paper Co., St. Louis, Mo. The West Virginia Pulp & Paper Co. will sell in the territory covered by each jobber to such jobber only. Sales of the Geo. W. Wheelwright Paper Co. in the Chicago territory are made entirely through Bradner, Smith & Co.

Jobbers' associations.—In many of the large cities the jobbers maintain local trade associations. There are other associations covering various sections of the country and also a national association covering the whole country. Only jobbers who are members of local associations can belong to the national association. The names of these associations and the location of their secretaries are as follows:

National Paper Trade Association, New York City.
 New England Paper Jobbers' Association, Boston, Mass.
 Empire State Paper Association, Rochester, N. Y.
 Baltimore and Southern Paper Trade Association, Baltimore, Md.
 Southern Paper Dealers' Association, Memphis, Tenn.
 Central States Paper Dealers' Association, Detroit, Mich.
 Western Paper Dealers' Association, Chicago, Ill.
 Northwestern Paper Trade Association, Minneapolis, Minn.
 Boston Paper Trade Association, Boston, Mass.
 Paper Trade Association of New York City, New York.
 Paper Trade Association of Philadelphia, Philadelphia, Pa.

The National Paper Trade Association has adopted on book-paper sales the trade customs which were drawn up by the book-paper manufacturers. For a copy of these trade customs see Exhibit 7.

Section 5. IMPORTS AND EXPORTS OF BOOK PAPER AND CHEMICAL PULP.

Practically all of the book paper consumed in the United States is produced by domestic manufacturers. Imports are almost negligible. Large quantities of chemical pulp used in making paper, however, are imported from Canada, Scandinavia, and other foreign countries. War conditions have interfered somewhat with such imports from Europe during the last two years.

The domestic production of book paper is normally in excess of domestic consumption, so that considerable quantities are exported. These exports increased rapidly in 1916 at the same time that domestic consumption was increasing. Many markets formerly supplied by European manufacturers were forced to depend upon the American manufacturers for their supplies.

Imports of book paper.—The principal countries exporting book paper to the United States in normal times were Germany, Netherlands, Norway, England, and Scotland. Since the beginning of the European war imports from Germany have ceased, and during the fiscal year 1917 no imports were received from the Netherlands.

Table 4 below shows for the fiscal years ending June 30, 1912 to 1917, the imports by principal countries into the United States of printing paper for books and newspapers, valued in excess of 2½ cents per pound prior to September 8, 1916, and in excess of 5 cents per pound since that date. The bulk of the paper included in this classification is book paper.

TABLE 4.—Imports into the United States of printing paper for books and newspapers, valued in excess of 2½ cents¹ per pound, by fiscal years ending June 30, 1912-1917.

[Net tons of 2,000 pounds.]

Country.	1912	1913	1914	1915	1916	1917
Germany.....	455	236	690	73	.....	.....
Netherlands.....	556	803	687	733	135	.....
Norway.....	517	462	315	250	11	112
England and Scotland.....	962	945	782	815	484	64
Other countries.....	445	723	553	397	81	221
Total.....	2,935	3,169	3,027	2,268	711	397

¹ Since Sept. 8, 1916, 5 cents per pound.

As the table shows, the imports have declined during the period from 3,169 tons in the fiscal year ending June 30, 1913, to 2,268 tons in 1915, 711 tons in 1916, and 397 tons in 1917. Of the 397 tons Canada furnished 107 tons.

Imports of chemical wood pulp.—The principal countries exporting chemical pulp to the United States have been Germany, Norway, Sweden, and Canada. Imports from other countries are small. Sweden and Canada have furnished more than half of the unbleached pulp and Norway more than half of the bleached pulp, except in 1915 when the imports from that country were a little less than one-half.

Unbleached chemical wood pulp imported into the United States includes easy bleaching sulphite and unbleached sulphate, and bleached chemical wood pulp includes both sulphite and sulphate. Import statistics since July 1, 1916, separate sulphite from sulphate and these figures show that nearly 27 per cent of the unbleached and more than 9 per cent of the bleached pulp was sulphate. Table 5 below shows the imports of chemical wood pulp by fiscal years ending June 30, 1912-1917 and by months and six-month periods 1915 to June, 1917.

TABLE 5.—Imports of chemical wood pulp by principal countries, fiscal years ending June 30, 1912-1917, and by months, January, 1915-June, 1917.

[Net tons of 2,000 pounds.]

Country.	1912	1913	1914	1915	1916	1917
UNBLEACHED.						
Germany.....	55,829	59,264	55,944	24,490	118	.....
Norway.....	31,774	48,558	43,970	46,078	17,843	12,700
Sweden.....	95,350	126,353	117,914	149,633	101,512	208,635
Canada.....	38,159	50,559	79,337	109,180	176,163	200,329
Other.....	17,228	14,553	5,908	6,767	1,032	8,429
Total.....	238,340	299,287	302,963	336,128	296,668	427,398
BLEACHED.						
Germany.....	17,300	16,361	18,638	17,070	1	.....
Norway.....	41,798	45,543	46,292	54,389	40,019	25,123
Sweden.....	11,563	12,548	14,165	25,304	11,101	18,001
Canada.....	7,713	5,682	6,630	12,915	11,109	10,378
Other.....	2,123	1,756	3,192	2,944	221	.....
Total.....	80,537	81,891	88,917	112,622	62,451	58,497
Total unbleached and bleached.....	318,877	381,178	391,880	448,750	359,119	485,895

TABLE 5.—Imports of chemical wood pulp by principal countries, fiscal years ending June 30, 1912–1917, and by months, January, 1916–June, 1917—Continued.

Months.	1915		1916		1917	
	Un-bleached.	Bleached.	Un-bleached.	Bleached.	Un-bleached.	Bleached.
January.....	12,424	8,208	28,090	4,200	28,450	10,033
February.....	32,780	7,615	23,227	8,745	31,836	4,286
March.....	26,657	9,410	18,515	3,642	27,035	2,150
April.....	15,402	3,067	26,660	6,352	24,358	1,590
May.....	14,599	5,497	19,472	5,181	43,454	9,830
June.....	18,204	5,658	19,002	1,160	39,003	1,947
July.....	21,273	5,316	29,331	4,050	.....	.....
August.....	29,283	6,158	41,343	3,960	.....	.....
September.....	24,541	6,215	24,721	3,896	.....	.....
October.....	28,692	4,086	34,290	3,706	.....	.....
November.....	29,355	4,655	31,316	2,099	.....	.....
December.....	29,478	6,739	72,258	5,951	.....	.....
First 6 months.....	160,075	39,455	134,966	29,280	194,136	29,836
Second 6 months.....	161,622	33,169	233,259	23,662	.....	.....
Total for year.....	321,697	72,624	368,225	52,942	.....	.....

The table shows that the imports of both classes of pulp increased from 318,877 tons in the fiscal year 1912 to 448,750 tons in 1915 and fell to 359,119 tons in 1916. For the fiscal year 1917 the total imports were 480,890 net tons, or 32,140 net tons more than for any year shown in the table. Imports by six-month periods for bleached pulp fell from 39,455 in the first half of the calendar year 1915 to 23,662 in the last half of 1916 and then increased to 29,836 tons in the first six months of 1917. Imports of unbleached pulp were only 134,966 tons in the first half of 1916, as against 233,259 tons in the second half of the same year. The imports were largest in December, 1916, the imports of bleached and unbleached pulp being 78,209 tons, or nearly four times the imports in June, 1916.

In Europe the sulphate process has almost entirely displaced the soda process for the alkaline digestion of coniferous woods, which accounts for the absence of imports of soda pulp.

Exports of wood pulp.—Exports of domestic wood pulp for the fiscal years ending June 30, 1912–1917 are shown in Table 6 below.

TABLE 6.—Exports of domestic wood pulp, fiscal years ending June 30, 1912–1917.

[Net tons of 2,000 pounds.]

Country.	1912	1913	1914	1915	1916	1917
England.....	875	1,207	1,313	1,008	2,934	8,092
Belgium.....	3,311	2,896	2,122	171	.....	.....
France.....	2,150	3,380	2,621	309	1,244	655
Canada.....	1,967	10,173	3,578	3,064	12,863	13,486
Argentina.....	33	868	951	1,362	4,963	3,575
Japan.....	44	.....	54	2,249	15,529	1,197
Other.....	1,574	2,212	2,842	1,276	2,760	2,177
Total.....	9,944	20,738	13,481	9,419	40,313	29,182

Exports of domestic pulp have fluctuated widely from year to year, ranging from 9,419 tons in 1915 to 40,313 tons in 1916. The exports for the fiscal year 1917 are only 72 per cent of those for the preceding year. Japan, which ordinarily imports little pulp from the United

States, took 15,529 tons in 1916, and Canada took more than 10,000 tons in 1913, 1916, and 1917.

Exports of book paper.—The principal countries to which book paper is exported are Argentina, Australia, Cuba, England and Scotland, Brazil, Mexico, Canada, Japan, and Chile. Table 7 shows the tons of printing paper other than news print exported from the United States to specified countries and the total for the fiscal years ending June 30, 1912–1917. The bulk of this paper is book paper.

TABLE 7.—*Exports of domestic printing paper other than news print, fiscal years ending June 30, 1912–1917.*

[Net tons of 2,000 pounds.]

	1912	1913	1914	1915	1916	1917
Argentina.....	56	104	178	786	5,812	10,109
Australia.....	946	1,380	1,414	2,114	3,105	8,525
Cuba.....	2,164	2,888	2,552	3,143	5,321	7,320
England and Scotland.....	1,709	1,711	2,008	2,247	3,929	4,205
Brazil.....	56	20	23	340	2,091	6,727
Mexico.....	351	406	261	448	2,088	3,773
Canada.....	4,022	5,200	5,190	3,021	3,054	4,309
Japan.....	671	399	428	352	2,718	1,450
Chile.....	388	524	457	513	2,192	3,754
Other countries.....	1,744	1,685	1,795	2,668	6,417	14,429
Total.....	12,107	14,317	14,301	15,632	36,737	64,601
Period of 6 months ending—						
June 30.....				7,884	22,293	24,822
December 31.....				14,445	39,780	.....
Total for year.....				22,329	62,073	.....
January.....				897	2,655	5,654
February.....				992	3,304	2,861
March.....				1,184	3,642	3,735
April.....				1,274	3,580	3,898
May.....				1,480	4,463	4,062
June.....				2,057	4,649	4,592
July.....				2,115	6,024	.....
August.....				1,774	7,636	.....
September.....				2,264	5,421	.....
October.....				1,773	7,166	.....
November.....				2,216	6,986	.....
December.....				4,303	6,547	.....

Exports during the first four fiscal years ending June 30, 1912–1915 increased only 3,525 tons as compared with an increase of 21,105 tons in 1916 over 1915 and 27,864 tons in 1917 over 1916. The exports for the calendar year 1916 increased 39,744 tons over 1915, or about 178 per cent. The principal countries consuming this paper are shown in the first column of the table. Argentina leads with more than 10,000 tons in 1917. France and Greece, which normally import none, each took more than 1,000 tons in 1916. Exports by months increased steadily from 894 tons in January, 1915, to 7,636 tons in August, 1916. The smallest exports during any month since that date were for February, 1917, with 2,861 tons.

Section 6. ADVERTISING AND CIRCULATION STATISTICS.

The domestic consumption of book paper in 1916 as compared with 1915 is shown by increases in the number of copies and the number of pages of advertising matter printed by the principal periodicals and magazines. The possibility of variations in the weight of paper used

and in the size of page was not considered. Such data were obtained by months for the period January, 1915, to December, 1916, from a number of publishers of periodicals in New York, Philadelphia, Boston, Cleveland, and Chicago. Table 8 below shows the total increase and percentage of increase, by cities, of pages printed, advertising pages printed, copies printed, average number of pages per issue and average number of advertising pages per issue for 129 important periodicals.

TABLE 8.—*Increase in total pages, advertising pages, and copies printed, and average increase per issue of certain periodicals, by cities, 1916 over 1915.*

City.	Number of periodicals.	Increase, all issues, 1916 over 1915.						Average increase per issue.			
		Total pages.		Advertising pages.		Copies printed.		Total pages per issue.		Advertising pages per issue.	
		Number.	Per cent.	Number.	Per cent.	Number.	Per cent.	Number.	Per cent.	Number.	Per cent.
New York....	69	3,569,825,411		152,749,554,488		2615,760,912	8	9.6	9.1	9.5	18.2
Philadelphia..	18	2,683,239,033		261,743,809,830	42	8,044,107	5	18.5	13.1	12.7	27.1
Boston.....	13	25,616,335	3	14,234,532	5	¹ 31,830	(?)	.1	.2	.5	2.2
Cleveland.....	8	21,409,110	4	42,192,730	25	221,085	2	6.1	6.3	6.5	16.7
Chicago.....	21	702,157,941	12	515,557,946	25	2,358,802	4	4.7	3.9	5.9	13.6
Total and average.		1297,002,247,830		175,065,349,526		2926,353,076	6	8.6	7.9	8.3	18.0

¹ Decrease.

² Decrease of less than 1 per cent.

Of the 129 periodicals included in the table 72 are monthly, 50 are weekly, 1 five times a week, and 2 each are semimonthly, bi-monthly, and quarterly. Four of the cities show an increase in the total number of copies printed, while the 13 in Boston had a slight loss. The increase in advertising was the controlling factor in the increased demand by publishers. The total number of advertising pages increased more than 5,000,000,000, or 29 per cent for the 129 periodicals. The increase for Boston was a little over 14,000,000, or 5 per cent; while that for Philadelphia was 1,750,000,000, or 42 per cent. The advertising pages for the 69 New York publications increased 2,750,000,000, or 26 per cent, in 1916 over 1915. The eight publications in Cleveland showed an increase of more than 42,000,000 pages in advertising, or 25 per cent, as against an increase of only 21,000,000 in total pages printed, indicating a decided reduction in the volume of reading matter.

The average number of pages of reading matter per issue increased 5.8 pages for Philadelphia and only one-tenth of a page for New York, while in the other cities advertising more than absorbed all the gain in the average number of pages per issue. For the 129 periodicals combined reading matter increased only three-tenths of a page per issue.

The increase in advertising pages per issue in 1916 over 1915 is indicated by the percentage figures in the last column of the table, which range from 2.2 per cent for the 13 Boston periodicals to 27.1 per cent for the 18 Philadelphia periodicals, with an average of 18 per cent for the 129 periodicals combined.

Section 7. SUMMARY OF SUPPLY AND DEMAND FACTORS.

The statistics given in the preceding sections show the changes in the supply and demand for book paper in 1916 and 1917 as compared with 1915. The domestic demand and supply is shown by the increases in production and shipments, the decreases in stocks on hand, and the increases in the advertising pages and total printed pages of 129 leading publications, which were as follows:

Production of principal mills increased in calendar year 1916 over 1915 about 20 per cent.

Production of principal mills for the first 8 months of 1917 was at a slightly lower rate than for 1916.

Shipments of principal mills increased in calendar year 1916 over 1915 about 22 per cent.

Shipments of principal mills for the first 8 months of 1917 were at a somewhat lower rate than in 1916.

Stocks on hand of principal mills decreased in calendar year 1916 under 1915 about 50 per cent.

Stocks on hand at the end of the first 8 months of 1917 were considerably larger than at the end of 1916.

Advertising pages of 129 leading publications increased in calendar year 1916 over 1915 29 per cent.

Total pages printed by 129 leading publications increased in calendar year 1916 over 1915 17 per cent.

The situation regarding the foreign demand and supply of book paper is shown by the increases in exports and the decreases in imports, which were as follows:

Exports increased in the fiscal year 1916 over 1915 about 135 per cent.

Exports increased in the fiscal year 1917 over 1916 about 76 per cent.

Imports decreased in the fiscal year 1916 over 1915 about 69 per cent.

Imports decreased in the fiscal year 1917 over 1916 about 44 per cent.

The business prosperity in the United States in 1916 stimulated advertising and increased the demand for book paper, especially by publishers of magazines and periodicals. The demand for book paper for commercial purposes also increased. The unusual conditions throughout the world brought about by the European war caused an increase in the demand of foreign buyers. Production abroad was curtailed, and certain countries formerly supplied by Europe were obliged to obtain their supplies from the United States. This caused a large increase in exports.

During 1916 the book-paper mills were run at high speed, some of them exceeding their rated capacity, but although production increased almost 20 per cent, this was not sufficient to take care of the demands of both domestic and foreign buyers, so that stocks declined about 50 per cent. The rising prices and declining stocks caused a panic among buyers, which resulted in considerable hoarding of paper.

CHAPTER II.

PRICES OF BOOK PAPER, AND JOBBERS' PROFITS.

Section 1. INTRODUCTION.

The commission secured from manufacturers, jobbers, and publishers the prices of machine finish, sized and supercalendered, and coated book paper for 1916 and one or more prior years. It was not feasible to obtain the prices of other special grades of book paper, which are sold in smaller quantities.¹

The prices paid and received by jobbers were secured on sales for direct shipment from the mill to the consumer, so that the jobbers' gross margins of profit could be ascertained. It was not possible to obtain the margins of profit on sales from the jobbers' stocks, since the cost and selling prices for the same lots of paper could not be ascertained.

Sources of information.—Prices received by manufacturers were obtained from 23 companies, whose mills are located in the territory from Maine to Virginia and from Pennsylvania to Wisconsin. Prices paid and received by jobbers were secured from 31 concerns located in Boston, New York, Philadelphia, Baltimore, Rochester, Buffalo, Pittsburgh, Cleveland, Columbus, Detroit, Chicago, Cincinnati, Louisville, and St. Louis. Prices paid by publishers were obtained from more than 100 leading publishers, most of whom are located in Boston, New York, Philadelphia, Baltimore, Cleveland, and Chicago.

Principal uses.—Machine finish paper is used largely by the publishers of books and for printing catalogues, etc. A large part of the sized and supercalendered paper is used by publishers of illustrated magazines. Coated paper is used chiefly for high-grade illustration and lithographic work. Some of the paper of each grade is also used for miscellaneous purposes. (See p. 20.)

Variations in prices.—It was found that the prices of book paper varied not only on account of the difference in grade and finish, but also for a number of other reasons.

Prices on contracts are usually lower than prices on open-market sales. Large orders are generally sold at a lower price than small orders. Special orders that have to be made according to specifications furnished by the purchaser are charged at a higher rate than for similar items carried in stock. Colored paper is higher in price than white paper and paper below the basis weight is higher in price than the same grade at or above the basis weight.² Prices also vary according to the method of packing for shipment.³ A customer who has been buying from the same manufacturer or jobber for a long time usually gets a better quotation than an occasional buyer. The credit risk of customers is also reflected in the price. Lower

¹For a full description of the different grades of book paper, see pp. 19 to 20.

²See Exhibit 7 for details of basis weights and excess charges for under weights.

³See p. 123.

prices are charged by some manufacturers and jobbers to publishers of periodicals than to publishers of books, while the latter have been charged lower prices than consumers of paper for miscellaneous purposes. These differences in price were especially pronounced in 1916. (See p. 58.)

In the chief consuming territory of book paper freight rates do not cause much variation in prices, as the book-paper mills are well scattered, so that most of the large consumers are located not far distant from one or more mills. For this reason, all prices given in this chapter are for sales to customers located in the territory north of and including Virginia, Kentucky, and Missouri, and east of and including Missouri, Iowa, and Minnesota.

Method of presenting data.—The prices and jobbers' margins are presented as averages, in order to show the extent of the increases.

Prices are shown on white book paper for the three grades—machine finish, sized and supercalendered, and coated. The prices in each case cover all varieties within each grade and also include all kinds of packing.

Separate tabulations were made for paper sold under contract and that sold in the open market.

Contract prices are shown for contracts made during the period 1913 to 1916,¹ inclusive, and are given separately for sales of manufacturers and sales of jobbers. The manufacturers' contract prices are given separately for manufacturers east of the Pennsylvania-Ohio line and for those west of that line, and in each case for sales to publishers and to jobbers. The jobbers' contract sales are also shown separately for eastern and western jobbers.

Open-market prices are shown for 1915, 1916, and the first quarter of 1917, and are given separately for the sales of jobbers and the purchases of publishers in certain cities.

Jobbers' gross margins are shown separately for contracts and for open-market sales.

The prices shown in this chapter are net prices, that is, the discounts and commissions have been subtracted in all cases. All prices are for delivery of the paper at the customer's sidewalk, and therefore include freight and cartage. In the territory for which prices are given the carload freight rate averages between 10 and 15 cents per 100 pounds and cartage about 4 cents per 100 pounds.

Section 2. CONTRACT PRICES.

A smaller proportion of book paper is sold under contract than is the case with news-print paper, there being fewer large consumers. Some of the manufacturers of book paper sell none of their output under contract, some sell only a small proportion, while others sell 90 per cent or more in this way. In general, companies with a small production sell most of their paper in the open market, while those with a large production sell mostly on contract.

A larger proportion of supercalendered paper is disposed of under contract than any other grade, and a smaller proportion of coated. This is due to the fact that supercalendered is used in large quantities regularly by publishers of periodicals, while coated is used in small quantities at irregular intervals by a large number of consumers.

¹ For western manufacturers the contract prices are also shown for the first quarter of 1917.

Terms of contracts.—Contracts for the purchase of book paper provide for delivery to the purchaser of a certain tonnage of a specified grade of paper at the price, on the terms, and for the period stipulated in the agreement.

The tonnage specifications prior to 1916 varied considerably. In some cases provision was made for the entire requirements of the purchasers with an estimate of the tonnage required. Sometimes a maximum and minimum tonnage was fixed. In some contracts a definite tonnage was named, but with a leeway of a certain percentage either above or below the specified tonnage. Under any of these provisions great liberty was allowed to the purchaser as to how much paper he would take. In contrast most of the contracts for delivery of paper in 1917 fix a definite noncumulative tonnage to be delivered each month.

As a rule the contracts cover a period of one year, although many cover shorter periods, and a few run for two or three years.

Nearly all the contracts for book paper provide for the delivery of the paper either at customer's sidewalk or f. o. b. cars at destination. Manufacturers and jobbers east of the Pennsylvania-Ohio line usually deliver the paper at the sidewalk, while those west of this line usually deliver f. o. b. cars at destination except in large cities. Cartage charges from cars to sidewalk range from 2½ to 5 cents per 100 pounds. Where the cartage charge was not stated, it was estimated at 4 cents per 100 pounds.

Discounts ranging from 1 per cent to 5 per cent are given on practically all contracts, the prevailing rate of discount being 3 per cent for payment in 30 days.

A large quantity of book paper is purchased under so-called letter contracts and some under oral agreements. The letter contract is in the form of a letter from the seller to the purchaser, naming the price, terms, etc. Upon acceptance by the purchaser the contract is closed. Most of the oral agreements are subject to change after the seller has notified the purchaser. In 1916, after the general advance in prices began, the prices on many of these oral agreements were advanced every two or three months.

In many cases formal contracts made late in 1916 stipulated the tonnage, terms, period of contract, etc., but made the price subject to change every one, two, or three months. The purchaser was protected as to his supply of paper but not as to the price.

The paper furnished under recent contracts has frequently been a lower grade than that formerly furnished under the same specifications. In some cases publishers voluntarily accepted a lower grade than they had been getting.

In this section the prices have been tabulated according to the date of making the contract, and not the period covered. For example, contracts made in the second half of 1916 were mostly for delivery of paper during 1917.

Manufacturers' prices.—The following table shows the average net prices per 100 pounds received by 23 principal manufacturers on contracts with publishers and jobbers for delivery of white book paper at purchaser's sidewalk during the period 1913 to 1916, inclusive.

TABLE 9.—Average net prices per 100 pounds received by 23 principal manufacturers in the United States on contracts with publishers and jobbers for delivery of white book paper at purchasers' sidewalk, 1913-1916.¹

	Publishers.		Jobbers.		Publishers and jobbers combined.	
	Total.	Per 100 pounds.	Total.	Per 100 pounds.	Total.	Per 100 pounds.
Machine finish:	<i>Tons.</i>		<i>Tons.</i>		<i>Tons.</i>	
1913.....	26,772	\$3.58	33,407	\$3.75	60,179	\$3.67
1914.....	34,569	3.58	59,791	3.67	94,360	3.64
1915.....	37,733	3.59	76,393	3.61	104,121	3.60
1916 (first half).....	7,578	4.31	22,060	4.12	29,638	4.17
1916 (second half).....	29,727	6.34	30,448	6.97	60,175	6.66
Supercalendered:						
1913.....	91,295	3.60	24,645	3.80	115,940	3.64
1914.....	76,212	3.65	22,166	3.73	98,378	3.67
1915.....	105,186	3.68	32,137	3.66	137,323	3.60
1916 (first half).....	34,187	3.65	12,112	4.92	46,299	3.99
1916 (second half).....	119,397	6.87	17,814	6.65	137,211	6.97
Coated:						
1913.....	1,956	5.17	11,231	5.28	13,187	5.26
1914.....	1,381	5.53	2,114	4.92	3,495	5.16
1915.....	5,639	4.89	5,034	4.84	10,673	4.87
1916 (first half).....	1,854	5.16	7,333	5.99	9,187	5.58
1916 (second half).....	4,337	8.01	5,785	8.07	10,122	8.06

¹ This table includes contract sales of mills east of the Mississippi River, for delivery of paper in the territory north of and including Virginia, Kentucky, and Missouri, and east of and including Missouri, Iowa, and Minnesota.

The table shows that the average prices for all three grades on contracts with publishers and jobbers combined declined during the period 1913-1915, inclusive. On machine-finish paper the average price decreased from \$3.67 to \$3.60, or 7 cents per 100 pounds; on supercalendered, from \$3.64 to \$3.60, or 4 cents per 100 pounds; and on coated, from \$5.26 to \$4.87, or 39 cents per 100 pounds. The major part of these decreases was due to the decline in prices to jobbers, which was 14 cents for machine finish, 14 cents for supercalendered, and 44 cents for coated. Prices to publishers increased 1 cent per 100 pounds for machine finish and decreased 2 cents for supercalendered and 28 cents for coated.

Prices advanced in every case during the first half of 1916, the extent of the advance being dependent upon whether the major part of the tonnage was contracted for during the first quarter or the second quarter of the year. The increases during the second half of 1916 were very large in all cases.

The publishers paid lower prices for machine finish and supercalendered paper than the jobbers. The least differences paid by these two classes of customers were in 1915, being 2 cents per 100 pounds on machine finish and 8 cents on supercalendered, while the greatest differences were in the second half of 1916, being 63 cents per 100 pounds on machine finish and 78 cents on supercalendered. On coated paper lower prices were paid by publishers than jobbers in 1913 and the second half of 1916, while lower prices were paid by jobbers than publishers in 1914 and 1915.

The table shows that a larger tonnage of supercalendered paper was sold under contract to publishers and jobbers combined than of either of the other grades, while machine finish came next. The tonnage for coated was much less than that for either of the other grades.

More of the machine finish and coated paper under contract was sold to jobbers than to publishers, but more than three-fourths of the supercalendered shown in the table was sold directly to publishers during each of the years 1913-1916, inclusive.

The average contract prices of supercalendered paper were generally only a few cents per 100 pounds higher than those of machine finish during the period 1913-1915, inclusive, while in the second half of 1916 they were decidedly lower. The price of supercalendered is ordinarily quoted at about 25 cents per 100 pounds higher than machine finish. The chief reason for the level of the average prices on these two grades as shown in the table is that most of the supercalendered was sold to publishers of periodicals, in many cases under contracts for large tonnages, and as shown later (see p. 58) this class of purchasers was able to make contracts at lower prices than any other class, especially in the last half of 1916. Another reason for the comparatively low average prices of supercalendered is that most of this grade of paper is made by a few manufacturers whose costs are low.

The increases in the average contract prices of the 23 manufacturers in the second half of 1916 as compared with 1915 are given in the tabulation below in dollars per 100 pounds and in percentages:

	Increase, second half of 1916 over the year 1915.					
	Machine finish.		Supercalendered.		Coated.	
	Per 100 pounds.	Per cent.	Per 100 pounds.	Per cent.	Per 100 pounds.	Per cent.
Publishers.....	\$2.75	77	\$2.29	64	\$3.12	64
Jobbers.....	3.36	93	2.99	82	3.23	67
Publishers and jobbers combined.....	3.06	85	2.37	66	3.18	65

The tabulation shows that, for sales to publishers and jobbers combined, the greatest increase in dollars was on coated paper, while the greatest increase in percentages was on machine finish. The lowest increase in percentages was on coated, while the lowest increase in dollars was on supercalendered.

The increases to jobbers both in dollars and per cents were greater than the increases to publishers. On machine-finish paper the prices increased 16 per cent more to jobbers than to publishers; on supercalendered, 18 per cent more; and on coated, 3 per cent more.

The following table shows contract prices for the same manufacturers included in Table 9, above, but separates the manufacturers east of the Pennsylvania-Ohio line from those west of that line.

TABLE 10.—Average net prices per 100 pounds received by 13 eastern¹ and 10 western² manufacturers on contracts³ with publishers and jobbers for delivery of white book paper at purchasers' sidewalk, 1913-1917 (first quarter).

Date of making contract.	Publishers.		Jobbers.		Publishers and jobbers combined.	
	Total.	Per 100 pounds.	Total.	Per 100 pounds.	Total.	Per 100 pounds.
EASTERN MANUFACTURERS.						
Machine finish:	<i>Tons.</i>		<i>Tons.</i>		<i>Tons.</i>	
1913.....	20,207	\$3.60	12,322	\$3.60	32,529	\$3.60
1914.....	28,091	3.59	33,882	3.58	61,973	3.58
1915.....	24,722	3.59	30,349	3.63	55,071	3.61
1916 (first half).....	6,925	4.34	6,670	4.18	13,595	4.27
1916 (second half).....	27,252	6.39	12,546	6.63	39,798	6.46
Supercalendered:						
1913.....	88,346	3.89	17,063	3.85	105,409	3.84
1914.....	73,202	3.65	12,403	3.74	85,605	3.68
1915.....	101,104	3.59	17,079	3.66	118,183	3.60
1916 (first half).....	23,848	3.59	6,712	4.30	30,560	3.75
1916 (second half).....	115,837	5.87	12,366	6.20	128,203	5.91
Coated:						
1913.....	1,576	5.22	11,231	5.28	12,807	5.37
1914.....	726	6.67	607	4.96	1,333	6.34
1915.....	4,364	4.91	829	4.95	5,193	4.92
1916 (first half).....	1,179	5.07	283	6.00	1,462	5.26
1916 (second half).....	4,237	8.00	941	8.71	5,178	8.13
WESTERN MANUFACTURERS.						
Machine finish:						
1913.....	6,565	3.50	21,085	3.84	27,650	3.76
1914.....	6,418	3.55	25,909	3.79	32,327	3.74
1915.....	3,016	3.59	46,044	3.60	49,060	3.60
1916 (first half).....	653	3.96	15,420	4.09	16,073	4.08
1916 (second half).....	2,475	5.75	17,902	7.21	20,377	7.03
1917 (first quarter).....	1,280	6.88	4,157	6.26	5,437	6.41
Supercalendered:						
1913.....	2,949	3.67	7,582	3.70	10,531	3.69
1914.....	3,010	3.62	9,753	3.72	12,763	3.69
1915.....	4,062	3.33	15,058	3.65	19,140	3.58
1916 (first half).....	10,339	3.80	5,400	5.69	15,739	4.45
1916 (second half).....	3,560	5.84	5,448	7.68	9,008	6.95
1917 (first quarter).....	996	6.46	272	6.96	1,268	6.56
Coated:						
1913.....	380	4.95			380	4.95
1914.....	655	5.38	1,507	4.91	2,162	5.05
1915.....	1,275	4.83	4,205	4.82	5,480	4.82
1916 (first half).....	675	5.31	7,060	5.67	7,725	5.64
1916 (second half).....	100	8.77	4,844	7.95	4,944	7.97
1917 (first quarter).....			847	8.98	847	8.98

¹ Mills east of Pennsylvania-Ohio line.

² Mills in Ohio, Michigan, and Wisconsin.

³ Contracts for delivery in territory north of and including Virginia, Kentucky, and Missouri, and east of and including Missouri, Iowa, and Minnesota.

This table shows that eastern manufacturers sell more paper under contract to publishers than to jobbers, while the western manufacturers sell most of their paper to jobbers. The other points brought out by the table are the same as those discussed in connection with Table 9, above.

The increases in the prices given in the above table for the second half of 1916 over 1915 are shown below in dollars and in percentages:

Grade.	Increase of second half of 1916 over the year 1915.					
	Publishers.		Jobbers.		Publishers and jobbers combined.	
	Per 100 pounds.	Per cent.	Per 100 pounds.	Per cent.	Per 100 pounds.	Per cent.
Machine finish:						
Eastern manufacturers.....	\$2.80	78	\$3.00	83	\$2.85	79
Western manufacturers.....	2.16	60	3.61	100	3.43	95
Eastern and western combined.....	2.75	77	3.36	93	3.06	85
Supercalendered:						
Eastern manufacturers.....	2.28	64	2.54	66	2.31	64
Western manufacturers.....	2.51	75	4.03	110	3.37	94
Eastern and western combined.....	2.29	64	2.99	82	2.37	66
Coated:						
Eastern manufacturers.....	3.09	63	3.76	76	3.21	65
Western manufacturers.....	3.94	82	3.13	65	3.15	65
Eastern and western combined.....	3.12	64	3.23	67	3.18	65

This tabulation shows that the prices of western manufacturers generally increased to a greater extent than those of eastern manufacturers. Prices of western manufacturers to publishers and jobbers combined on machine-finish paper increased \$3.43 per 100 pounds, or 95 per cent, while the prices of eastern manufacturers increased only \$2.85, or 79 per cent; prices of western manufacturers on supercalendered increased \$3.37, or 94 per cent, as compared with \$2.31, or 64 per cent, for eastern manufacturers. On coated, however, the price of both western and eastern manufacturers increased 65 per cent.

The largest increases shown are \$4.03 per 100 pounds, or 110 per cent, on supercalendered paper for contracts of western manufacturers with jobbers, and \$3.61, or 100 per cent, on machine finish for contracts of western manufacturers with jobbers. The smallest increase shown is \$2.16, or 60 per cent, on machine finish for contracts of western manufacturers with publishers.

Jobbers' prices.—The contract prices received by 11 eastern and 10 western jobbers on contracts for delivery of white book paper at purchasers' sidewalk, 1914-1916, are shown below:

TABLE 11.—Average net prices per 100 pounds received by 11 eastern¹ and 10 western² jobbers on contracts³ for delivery of white book paper at purchasers' sidewalk, 1914-1916.

Date of making contract.	Eastern jobbers.		Western jobbers.		Eastern and western jobbers combined.	
	Total.	Per 100 pounds.	Total.	Per 100 pounds.	Total.	Per 100 pounds.
Machine finish:	<i>Tons.</i>		<i>Tons.</i>		<i>Tons.</i>	
1914.....	7,893	\$3.52	9,758	\$3.50	17,651	\$3.51
1915.....	5,273	3.66	9,887	3.61	15,160	3.63
1916 (first half).....	1,027	3.61	5,882	4.32	6,909	4.21
1916 (second half).....	4,116	6.62	4,249	6.70	8,365	6.66
Supercalendered:						
1914.....	3,338	3.75	4,352	3.90	7,690	3.84
1915.....	5,231	3.79	9,433	3.78	14,664	3.78
1916 (first half).....	377	4.49	2,274	4.73	2,651	4.70
1916 (second half).....	1,652	7.82	3,383	6.75	5,035	7.19
Coated:						
1914.....	230	5.15	2,225	5.92	2,455	5.85
1915.....	6,813	5.09	2,948	5.52	9,761	5.22
1916 (first half).....	2,601	5.64	5,876	5.88	8,477	5.80
1916 (second half).....	4,208	8.07	3,322	8.21	7,530	8.13

¹ Jobbers east of the Pennsylvania-Ohio line and north of the Potomac.

² Jobbers west of the Pennsylvania-Ohio line and east of the Mississippi River, but including St. Louis.

³ Contracts for delivery in territory north of and including Virginia, Kentucky, and Missouri, and east of and including Missouri, Iowa, and Minnesota.

There was little change in prices during 1914 and 1915 except on coated paper, where there was a decided decrease in 1915. During 1916, however, the prices increased greatly.

The tabulation below shows the increases in average prices of the second half of 1916 over 1915:

	Increase of second half of 1916 over the year 1915.					
	Machine finish.		Supercalendered.		Coated.	
	Per 100 pounds.	Per cent.	Per 100 pounds.	Per cent.	Per 100 pounds.	Per cent.
Eastern jobbers.....	\$2.96	81	\$4.03	106	\$2.96	59
Western jobbers.....	3.09	86	2.97	79	2.69	49
Eastern and western combined.....	3.03	83	3.32	88	2.91	56

The tabulation shows that the average prices of eastern and western jobbers combined increased \$3.03 per 100 pounds, or 83 per cent, on machine-finish paper; \$3.32, or 88 per cent, on supercalendered; and \$2.91, or 56 per cent, on coated. Western jobbers secured the larger increase on machine finish and eastern jobbers the larger increase on supercalendered and coated. The largest increase was \$4.03 per 100 pounds, or 106 per cent, secured by eastern jobbers on supercalendered, and the smallest increase was \$2.69, or 49 per cent, secured by western jobbers on coated.

Section 3. OPEN-MARKET PRICES.

A large proportion of the book paper sold in the open market reaches the consumer through jobbers located in the various large cities of the country. A number of western manufacturers handle practically all of their open-market sales in this way.

The jobbers maintain stocks and a delivery service in the larger cities, and those who buy from a number of manufacturers usually have a greater variety of grades and sizes than could be secured from any one manufacturer. In fact, some jobbers carry hundreds of different items.

Publishers of books usually buy in the open market as the paper is needed, since only sufficient paper to print one edition at a time is wanted for each book. This is due to the fact that the grades and sizes may vary with each book.

Carload sales on open-market orders are practically all shipped direct from the mill to the consumer, even when sold through a jobber. Sales by jobbers of over 1 ton but less than a carload may be shipped direct from the mill or delivered from the jobber's warehouse.

Open-market sales by jobbers.—The following table shows the average net prices per 100 pounds received by the principal jobbers in certain cities for direct shipments on open-market sales in less than carload lots of white book paper delivered at purchasers' sidewalk, July, 1915–March, 1917, inclusive:

TABLE 12.—Average net prices per 100 pounds received by principal jobbers in certain cities for direct shipments on open-market sales in less-than-carload lots of white book paper delivered at purchasers' sidewalk, July, 1915–March, 1917, inclusive.

[Only direct shipments from mill to customers are included.]

Date of order.	Boston.	New York.	Philadelphia, Baltimore, Rochester, Buffalo, and Pittsburgh.	Cleveland, Columbus, and Detroit.	Chicago.	Cincinnati, Louisville, and St. Louis.
Machine finish:						
1915—						
Third quarter.....	\$3.82	\$3.83	\$3.74	\$3.94	\$3.98	\$3.74
Fourth quarter.....	4.13	3.87	3.70	3.85	3.94	3.79
1916—						
First quarter.....	4.71	4.44	4.49	4.60	4.52	4.58
Second quarter.....	5.49	5.69	5.95	5.26	6.47	6.47
Third quarter.....	7.34	7.73	7.03	7.73	7.81	7.71
Fourth quarter.....	9.83	8.87	7.76	8.68	8.36	8.78
1917—						
First quarter.....		8.06	8.40	9.01	8.39	8.83
Supercalendered:						
1915—						
Third quarter.....	5.37	4.19	3.96	3.95	4.04	4.01
Fourth quarter.....	4.37	4.10	4.11	4.04	4.14	4.03
1916—						
First quarter.....	5.14	4.85	4.71	4.74	5.13	4.63
Second quarter.....	8.10	6.27	5.57	6.12	6.63	6.61
Third quarter.....	8.77	6.07	5.77	7.55	8.14	9.06
Fourth quarter.....	8.95	8.76	7.68	7.13	8.87	9.15
1917—						
First quarter.....		8.46	9.72	10.19	8.29	8.76
Coated:						
1915—						
Third quarter.....	5.50	5.72	5.79	5.58	6.00	6.04
Fourth quarter.....	5.81	5.72	5.66	5.63	6.25	6.01
1916—						
First quarter.....	6.15	6.51	7.04	6.99	7.09	6.99
Second quarter.....	8.43	7.94	7.69	8.39	8.17	8.52
Third quarter.....	9.09	8.62	7.57	9.16	9.80	9.50
Fourth quarter.....	9.53	9.39	9.21	8.73	9.84	9.67
1917—						
First quarter.....		9.48	9.50	7.68	9.48	9.77

The table shows that beginning with the first quarter of 1916 there were in nearly all cases constant increases in open-market prices on the grades and in the cities shown.¹ In some cases there were further advances in the first quarter of 1917, but in others the prices remained about the same as those for the fourth quarter of 1916, or even declined.

For machine-finish paper, the lowest average price in the fourth quarter of 1915 in any of the cities shown was \$3.70 in the Philadelphia group, while the lowest in the fourth quarter of 1916 was \$7.76 for the same group. The highest prices for the same periods were \$4.13 and \$9.83, both in Boston.

For supercalendered paper the lowest average price in the fourth quarter of 1915 was \$4.03 in the Cincinnati group, and the lowest price in the fourth quarter of 1916 was \$7.13 in the Cleveland group. The highest prices for the same periods were \$4.37 in Boston and \$9.15 in the Cincinnati group.

¹ There were only four cases of decreases in 1916, which were as follows: In the Cleveland group there were decreases in the fourth quarter on both supercalendered paper and coated, in the Philadelphia group, there was a decrease in the third quarter on coated, and in the New York group there was a decrease in the third quarter on supercalendered.

For coated paper the lowest average price in the fourth quarter of 1915 was \$5.63 in the Cleveland group, while the lowest price in the fourth quarter of 1916 was \$8.73, also in the Cleveland group. The highest prices for the same periods were \$6.25 in Chicago and \$9.84 also in Chicago.

The increases in the prices in the above table of the fourth quarter of 1916 over the fourth quarter of 1915 are shown in the following tabulation both in dollars and percentages:

City.	Increase of fourth quarter of 1916 over fourth quarter of 1915.					
	Machine finish.		Supercalendered.		Coated.	
	Per 100 pounds.	Per cent.	Per 100 pounds.	Per cent.	Per 100 pounds.	Per cent.
Boston.....	\$5.70	138	\$4.58	105	\$3.72	64
New York.....	5.00	129	4.66	114	3.67	64
Philadelphia, etc.....	4.06	110	3.57	87	3.55	63
Cleveland, etc.....	4.83	125	3.09	76	3.10	55
Chicago.....	4.42	112	4.73	114	3.59	57
Cincinnati, etc.....	4.99	132	5.12	127	3.66	61

The tabulation shows that the greatest advances in prices were on machine-finish paper and the lowest on coated.

On machine-finish paper, the greatest advance in prices was \$5.70 per 100 pounds, or 138 per cent, in Boston. The smallest increase on this grade was \$4.06, or 110 per cent, in the Philadelphia group.

On supercalendered paper, the greatest advance was \$5.12 per 100 pounds, or 127 per cent, in the Cincinnati group, while the smallest increase was \$3.09, or 76 per cent, in the Cleveland group.

On coated paper the greatest advance was \$3.72 per 100 pounds, or 64 per cent, in Boston, while the smallest advance was \$3.10, or 55 per cent, in the Cleveland group.

The following table shows the average net prices per 100 pounds secured by jobbers in New York and Chicago for direct shipments on open-market sales in carload lots:

TABLE 13.—Average net prices per 100 pounds received by jobbers in New York and Chicago for direct shipments on open-market sales in carload lots of white book paper delivered at purchasers' sidewalk, July, 1915–March, 1917, inclusive.

[Only direct shipments from mill to customers are included.]

Date of order.	Machine finish.		Supercalendered.		Coated.	
	New York.	Chicago.	New York.	Chicago.	New York.	Chicago.
1915:						
Third quarter.....	\$4.31	\$3.97	\$3.83	\$3.77	\$6.49	\$5.88
Fourth quarter.....	4.24	3.67	4.20	4.12	5.82	5.72
1916:						
First quarter.....	4.55	5.15	5.86	5.10	6.11	6.26
Second quarter.....	5.23	6.49	5.37	6.15	7.59	8.35
Third quarter.....	6.83	6.83	6.91	8.40	8.06	9.43
Fourth quarter.....	8.00	8.00	8.21	8.17	9.19	9.67
1917:						
First quarter.....	8.11	7.57	8.44	8.53	9.31	9.19

In general, the prices on carload sales in the above table are somewhat lower than those shown for the same cities on less than carload sales in Table 12, above, especially during the last two quarters of 1916.

The tabulation below shows the increase of the fourth quarter of 1916 over the fourth quarter of 1915 for the prices shown above:

City.	Increase of fourth quarter of 1916 over fourth quarter of 1915.					
	Machine finish.		Supercalendered.		Coated.	
	Per 100 pounds.	Per cent.	Per 100 pounds.	Per cent.	Per 100 pounds.	Per cent.
New York.....	\$3.76	89	\$4.01	95	\$3.37	58
Chicago.....	4.33	118	4.05	95	3.95	69

In most cases, the increase was not as great on the carload sales as on the less-than-carload sales shown in the tabulation on page 48 above. However, the per cent of increase in Chicago on carload sales of machine-finish paper and coated was somewhat higher than on less-than-carload sales.

Open-market purchases by publishers.—The table below shows the average net prices paid by publishers in certain cities on open-market purchases in less than carload lots:

TABLE 14.—Average net prices per 100 pounds paid by principal publishers in certain cities on open-market purchases in less-than-carload lots of white book paper delivered at sidewalk, 1915-16.

Date of order.	Boston.	New York.	Philadelphia.	Baltimore.	Cleveland.	Chicago.
Machine finish:						
1915—						
First quarter.....	\$4.25	\$3.92	\$3.81	\$4.14	\$3.92	.....
Second quarter.....	4.18	3.99	3.97	4.00	4.04	\$3.81
Third quarter.....	4.22	4.07	4.17	3.91	4.48	3.88
Fourth quarter.....	4.22	4.07	3.98	4.47	3.87	3.94
1916—						
First quarter.....	4.45	4.42	4.42	4.88	4.60	4.49
Second quarter.....	4.92	5.56	5.90	6.90	7.04	6.54
Third quarter.....	6.21	6.63	6.39	6.76	8.18	6.52
Fourth quarter.....	7.54	7.55	7.27	7.59	9.19	8.32
1917—						
First quarter.....				8.32	7.90	8.46
Supercalendered:						
1915—						
First quarter.....	4.32	3.71	5.07	4.87	4.13	.....
Second quarter.....	4.64	3.67	4.86	4.53	4.69	3.95
Third quarter.....	4.33	3.72	4.64	3.69	4.47	3.99
Fourth quarter.....	4.29	3.62	4.50	4.06	4.79	3.87
1916—						
First quarter.....	4.54	3.88	5.40	4.92	4.83	4.03
Second quarter.....	5.12	4.91	6.72	7.64	7.89	5.83
Third quarter.....	7.14	5.95	7.33	7.81	5.88	6.31
Fourth quarter.....	8.49	6.54	8.49	9.88	.....	6.77
1917—						
First quarter.....				1.73	8.68	8.07
Coated:						
1915—						
First quarter.....	5.39	5.86	6.35	5.55	7.58	.....
Second quarter.....	5.43	5.60	6.57	5.44	6.72	.....
Third quarter.....	5.40	5.41	6.27	5.34	6.71	.....
Fourth quarter.....	5.60	5.34	5.89	5.39	5.73	.....
1916—						
First quarter.....	5.69	5.30	7.01	6.17	5.82	.....
Second quarter.....	5.76	6.54	8.36	8.34	8.80	.....
Third quarter.....	7.75	7.92	8.22	.....	6.54	.....
Fourth quarter.....	8.61	8.26	8.29	9.70	11.07	.....

This table includes open-market purchases for the publishers in the different cities from whom prices were secured. It includes not only purchases from jobbers for direct shipment from the mill, but also purchases delivered from jobbers' warehouse stocks and purchases from manufacturers.

There was little change in prices during 1915, but a rapid increase during 1916.

For machine-finish paper, the lowest average price in any of the cities shown in the fourth quarter of 1915 was \$3.87 per 100 pounds in Cleveland, while the lowest in the fourth quarter of 1916 was \$7.27 in Philadelphia. The highest prices for the same periods were \$4.47 in Baltimore and \$9.19 in Cleveland.

For supercalendered paper, the lowest price in the fourth quarter of 1915 was \$3.62 per 100 pounds in New York, while the lowest in the fourth quarter of 1916 was \$6.54, also in New York. The highest prices for the same periods were \$4.79 in Cleveland and \$9.88 in Baltimore.

For coated paper the lowest price in the fourth quarter of 1915 was \$5.34 per 100 pounds in New York, while the lowest in the fourth quarter of 1916 was \$8.26 in the same city. The highest prices for the same periods were \$5.89 in Philadelphia and \$11.07 in Cleveland.

The increases in the prices in the preceding table in the fourth quarter of 1916 over the fourth quarter of 1915 are shown in the following tabulation in dollars per 100 pounds and in per cents:

City.	Increase of fourth quarter of 1916 over fourth quarter of 1915.					
	Machine finish.		Supercalendered.		Coated.	
	Per 100 pounds.	Per cent.	Per 100 pounds.	Per cent.	Per 100 pounds.	Per cent.
Boston.....	\$3.32	79	\$4.20	98	\$3.01	54
New York.....	3.48	86	2.92	81	2.92	55
Philadelphia.....	3.29	83	3.99	89	2.40	41
Baltimore.....	3.12	70	5.80	142	4.31	80
Cleveland.....	5.32	137	3.89	81	5.34	93
Chicago.....	4.38	111	2.90	75		

¹ Increase of first quarter of 1917 over fourth quarter of 1915

On machine-finish paper the greatest increase in any of the cities shown was \$5.32 per 100 pounds, or 137 per cent, in Cleveland, while the smallest increase was \$3.12, or 70 per cent, in Baltimore.

On supercalendered paper the greatest increase was \$5.80 per 100 pounds, or 142 per cent, in Baltimore, and the smallest increase was \$2.90, or 75 per cent, in Chicago.

On coated paper the greatest increase was \$5.34 per 100 pounds, or 93 per cent, in Cleveland, and the smallest increase was \$2.40, or 41 per cent, in Philadelphia.

Section 4. JOBBERS' GROSS MARGINS OF PROFIT.

A large proportion of book paper reaches the consumer through jobbers. In many cases certain jobbers have the exclusive agency for one or more manufacturers in a large territory (see p. 32). On contract sales eastern jobbers handle only a small proportion of the

business, while western jobbers handle a large part of the contract business of western manufacturers. On open-market sales most of the business is handled by jobbers, especially in the West.

There were very few cases where the increases in gross margins in the second half of 1916 over the year 1915 were less than 100 per cent except on coated paper, while in some cases the increases were over 500 per cent. One Chicago jobber had an average gross margin during the second half of 1916 on all grades combined of over \$28 a ton on direct shipments from mill to customer in less than carload lots.

The margins shown in the following tables are solely on direct shipments from mill to customer. It was impracticable to secure the margins on sales of paper that passed through the jobbers' stocks, as the cost and selling prices of the same lots of paper could not be ascertained. However, practically all the contract sales are for direct shipment, while during 1916 a larger number of open-market sales were also for direct shipment than was the case before.

The margins represent the difference between the manufacturer's price to the jobber and the jobber's price to the customer, both prices being for delivery at customer's sidewalk, thus including freight and cartage.

Contract sales.—The average gross profits of jobbers¹ on contract sales are shown below:

TABLE 15.—Average gross profits of 11 eastern and 10 western jobbers on contracts for delivery of white book paper at purchasers' sidewalk, 1914-1916.

Date of making contract.	Eastern jobbers.		Western jobbers.		Eastern and western jobbers combined.	
	Per 100 pounds.	Per cent of price paid.	Per 100 pounds.	Per cent of price paid.	Per 100 pounds.	Per cent of price paid.
Machine finish:						
1914.....	\$0.16	5	\$0.15	4	\$0.15	4
1915.....	.24	7	.17	5	.23	6
1916 (first half).....	.13	4	.30	7	.27	7
1916 (second half).....	.45	7	.39	6	.42	7
Supercalendered:						
1914.....	.13	4	.19	5	.17	5
1915.....	.26	7	.16	4	.20	6
1916 (first half).....	.36	9	.24	5	.28	6
1916 (second half).....	.87	13	.55	9	.66	10
Coated:						
1914.....	.35	7	.47	9	.46	9
1915.....	.38	8	.37	7	.38	8
1916 (first half).....	.30	6	.38	7	.35	6
1916 (second half).....	.47	6	.43	6	.45	6

The table shows that there was a general increase in profits, expressed in dollars per 100 pounds, on both machine finish and supercalendered paper during the period 1914 to 1916, inclusive. With one exception, the margins on coated paper were lower in 1915 and the first half of 1916 than in 1914, but increased in the second half of 1916 as compared with the first half of 1916.

The margins in percentages of cost prices to jobbers also increased during the period shown on machine finish and supercalendered paper, but decreased on coated. In spite of the enormous increases

¹ These profits are on the sales shown in Table 11, on p. 45.

in prices, the gross margins in percentages increased in the second half of 1916 as compared with 1914 for eastern and western jobbers combined, from 4 per cent to 7 per cent on machine finish and from 5 per cent to 10 per cent on supercalendered, while on coated there was a decrease from 9 per cent to 6 per cent. The largest increase in percentages was made by eastern jobbers. This was from 4 per cent in 1914 to 13 per cent in the second half of 1916 on supercalendered.

Owing to the fact that the jobbers' expenses of handling paper per 100 pounds increased but little in 1916, a better standard of showing the increased profits of jobbers for the second half of 1916 as compared with the year 1915 and also with the year 1914 is presented by giving the increase in the gross margins in dollars per 100 pounds. This is shown in the following tabulation:

Grade.	Increase of second half of 1916 over the year 1915.		Increase of second half of 1916 over the year 1914.	
	Per 100 pounds.	Per cent.	Per 100 pounds.	Per cent.
Machine finish:				
Eastern jobbers	\$0.21	88	\$0.29	181
Western jobbers .....	.22	129	.24	160
Eastern and western combined .....	.22	110	.27	180
Supercalendered:				
Eastern jobbers .....	.61	285	.74	569
Western jobbers .....	.39	244	.36	189
Eastern and western combined .....	.46	230	.49	288
Coated:				
Eastern jobbers .....	.09	24	.12	34
Western jobbers .....	.06	16	1.04	19
Eastern and western combined .....	.07	18	1.01	12

¹ Decrease.

Comparing the second half of 1916 with the year 1915, the table shows that the increase in gross margins for eastern and western jobbers combined was 22 cents per 100 pounds, or 110 per cent, on machine-finish paper; 46 cents, or 230 per cent, on supercalendered; and 7 cents, or 18 per cent, on coated. The highest increase in percentage in the second half of 1916 over 1915 was 244 per cent for western jobbers on supercalendered, and the lowest was 16 per cent for western jobbers on coated.

Comparing the second half of 1916 with the year 1914, the increases were even greater, except on coated paper. Taking these periods, the increase for eastern and western jobbers combined was 27 cents per 100 pounds, or 180 per cent, on machine finish, and 49 cents, or 288 per cent, on supercalendered, while on coated the margin was 1 cent, or 2 per cent, less in the second half of 1916 than in the year 1914. Excluding coated, the greatest increase in percentages was 569 per cent for eastern jobbers on supercalendered and the lowest was 160 per cent for western jobbers on machine finish. On coated, the margin of eastern jobbers increased 12 cents per 100 pounds, or 34 per cent, while the margin of western jobbers decreased 4 cents, or 9 per cent.

Open-market sales.—The gross margins on open-market sales for direct shipment in less-than-carload lots ¹ increased much more than those on contract sales. These margins for jobbers in certain cities are shown below:

TABLE 16.—Average gross profits of principal jobbers in certain cities for direct shipments on open-market sales in less-than-carload lots of white book paper delivered at purchasers' sidewalk, July, 1915–March, 1917, inclusive.

Date of order.	Boston.		New York.		Philadel- phia, Baltimore, Rochester, Buffalo, and Pitts- burgh.		Cleveland, Columbus, and Detroit.		Chicago.		Cincinnati, Louisville, and St. Louis.	
	Per 100 pounds.	Per cent of price paid.	Per 100 pounds.	Per cent of price paid.	Per 100 pounds.	Per cent of price paid.	Per 100 pounds.	Per cent of price paid.	Per 100 pounds.	Per cent of price paid.	Per 100 pounds.	Per cent of price paid.
Machine finish:												
1915—												
Third quarter.....	\$0.36	10	\$0.30	8	\$0.29	8	\$0.35	10	\$0.31	8	\$0.29	8
Fourth quarter.....	.48	13	.30	8	.25	7	.33	9	.35	10	.33	10
1916—												
First quarter.....	.56	13	.44	11	.59	15	.64	16	.40	10	.49	12
Second quarter.....	1.00	22	.70	14	.98	20	.47	10	.56	9	.47	8
Third quarter.....	.67	10	.93	14	1.70	32	.85	12	.90	13	1.07	16
Fourth quarter.....	2.13	28	.90	11	1.14	17	.76	10	.94	13	1.00	13
1917—												
First quarter.....			.70	10	.80	11	.82	10	.80	11	.74	9
Supercalendered:												
1915—												
Third quarter.....	.38	8	.49	13	.25	7	.31	9	.28	7	.24	6
Fourth quarter.....	.49	13	.41	11	.30	8	.28	7	.30	8	.21	5
1916—												
First quarter.....	.80	18	.61	14	.39	9	.47	11	.48	10	.45	11
Second quarter.....	.97	14	.57	10	1.01	22	.63	11	.66	11	.52	9
Third quarter.....	.63	8	.35	6	.67	13	.96	15	.66	9	.86	10
Fourth quarter.....	.49	6	.77	10	1.56	25	.93	15	.99	13	1.03	13
1917—												
First quarter.....			.65	8	.87	10	.94	10	.88	12	.80	10
Coated:												
1915—												
Third quarter.....	.48	10	.48	9	.48	9	.40	8	.49	9	.76	14
Fourth quarter.....	.51	10	.48	9	.55	11	.41	8	.54	9	.82	16
1916—												
First quarter.....	.64	12	.61	10	.78	12	.82	13	.72	11	.60	9
Second quarter.....	.95	13	.81	11	1.14	17	.68	9	1.08	15	.69	9
Third quarter.....	.93	11	.95	12	1.05	16	1.00	12	.85	9	.91	11
Fourth quarter.....	.73	8	.83	10	1.02	12	.73	9	1.05	12	.62	7
1917—												
First quarter.....			.79	9	1.01	12	.54	8	1.04	12	.81	9

Large margins were secured by jobbers in 1916 in all the cities shown and on all three grades.

On machine-finish paper, the lowest margin in any city in the third quarter of 1915 was 29 cents per 100 pounds in the Philadelphia and Cincinnati groups, and the highest was 36 cents in Boston. In the fourth quarter of 1916, the lowest margin on this grade was 76 cents in the Cleveland group and the highest was \$2.13 in Boston, while the margin in the Philadelphia group was \$1.14 and in the Cincinnati group \$1.

¹ These margins are on the sales shown in Table 12, on p. 47.

On supercalendered paper, the lowest margin in the third quarter of 1915 was 24 cents per 100 pounds in the Cincinnati group and the highest was 49 cents in New York. In the fourth quarter of 1916, the lowest margin was 49 cents in Boston and the highest was \$1.56 in the Philadelphia group, while the margin in the Cincinnati group was \$1.03 and in Chicago 99 cents.

On coated paper, the lowest margin in the third quarter of 1915 was 40 cents per 100 pounds in the Cleveland group and the highest was 76 cents in the Cincinnati group. In the fourth quarter of 1916, the lowest margin was 62 cents in the Cincinnati group and the highest was \$1.05 in Chicago, while the margin in the Philadelphia group was \$1.02.

The margins in percentages of the purchase price of the jobbers also increased in 1916 in spite of the rapid increase in the prices on which they are based.

Comparing the fourth quarter of 1916 with the third quarter of 1915, the greatest increase in percentages on machine-finish paper was from 10 per cent to 28 per cent in Boston, while in the Cleveland group there was no increase, the percentage being 10 per cent for both periods. On supercalendered, the greatest increase was from 7 per cent to 25 per cent in the Philadelphia group, while there was a decrease from 13 per cent to 10 per cent in New York. On coated, the greatest increase was from 9 per cent to 12 per cent in both the Philadelphia and Chicago groups, while there was a decrease from 14 per cent to 7 per cent in the Cincinnati group.

The increase in the margins in dollars per 100 pounds, as stated above, shows the real situation better than the increase based upon the percentage of purchase price of jobbers. These margins are shown in the following tabulation:

City.	Increase of fourth quarter of 1916 over third quarter o. 1915.					
	Machine finish.		Supercalendered.		Coated.	
	Per 100 pounds.	Per cent.	Per 100 pounds.	Per cent.	Per 100 pounds.	Per cent.
Boston.....	\$1.77	492	\$0.11	29	\$0.26	52
New York.....	.60	200	.28	57	.35	73
Philadelphia, etc.....	.85	293	1.31	524	.54	113
Cleveland, etc.....	.41	117	.62	200	.33	88
Chicago.....	.63	203	.71	254	.56	114
Cincinnati, etc.....	.71	245	.79	329	1.14	118

¹ Decrease.

The tabulation shows that the increases in margins were very large, especially on machine finish and supercalendered paper, the increases in ten out of twelve cases being over 100 per cent. On coated, however, in only two cases out of six were there increases of over 100 per cent.

On machine-finish paper, the lowest increase was 41 cents per 100 pounds, or 117 per cent, in the Cleveland group, and the highest increase was \$1.77, or 492 per cent, in Boston.

On supercalendered paper, the lowest increase was 11 cents per 100 pounds, or 29 per cent, in Boston, and the highest was \$1.31, or 524 per cent, in the Philadelphia group.

On coated paper, there was a decrease of 14 cents per 100 pounds, or 18 per cent, in the Cincinnati group. Of the increases the lowest was 25 cents, or 52 per cent, in Boston, and the highest was 56 cents, or 114 per cent, in Chicago.

While the fourth quarter of 1916 has been taken for the purpose of showing the increase in jobbers' margins, it will be seen by referring to Table 16, p. 53, that in most cases the greatest average margins were secured in the second or third quarters of 1916. Therefore, if the greatest margins, rather than the margins in the fourth quarter of 1916 only, had been used, the increases in most cases would be much larger than those given above, as is shown by the following tabulation:

City.	Increase of highest average margins in any quarter of 1916 over average margin in third quarter of 1915.					
	Machine finish.		Supercalendered.		Coated.	
	Per 100 pounds.	Per cent.	Per 100 pounds.	Per cent.	Per 100 pounds.	Per cent.
Boston.....	\$1.77	492	\$0.59	155	\$0.47	98
New York.....	.63	210	.28	57	.47	98
Philadelphia, etc.....	1.41	486	1.31	524	.66	138
Cleveland, etc.....	.50	143	.65	210	.60	150
Chicago.....	.63	208	.71	254	.59	120
Cincinnati, etc.....	.78	269	.79	329	.15	20

Cost of doing business.—The cost of doing business on sales of book paper could not be secured as all jobbers handle many other lines of paper such as news, writing, wrapping, etc., and practically none of the jobbers keep a separate cost for the book paper sold. Where the costs were secured on the whole business, certain items were included, such as freight and cartage, which are not included in the gross margins shown in this section.

The data secured indicates that there was little or no increase in the cost of doing business per 100 pounds of paper handled in 1916 as compared with 1915. Therefore, the margins shown in this section indicate that the net profits of jobbers in dollars during the second half of 1916 were at least 100 per cent greater than in 1915, and probably nearer 150 per cent greater.

Section 5. ADDITIONAL COST OF BOOK PAPER TO CONTRACT PURCHASERS IN 1917.

The additional cost to certain purchasers resulting from the advance in prices of the book paper purchased under contract during the year 1917 is shown in the following table:

TABLE 17.—*Increases in contract prices to be paid to manufacturers by certain purchasers of white book paper in 1917 as compared with prices paid in 1916 for the same tonnages.*

[Deliveries at purchasers' sidewalk.]

Grade of paper and class of purchaser.	Tons to be delivered in 1917. ¹	Increase in net price per ton of 1917 over 1916.	Increase in net amount to be paid for 1917 tonnage as compared with that paid in 1916 for the same tonnage.
Machine finish:			
Publishers—			
No. 1.....	42	\$52.40	\$2,200.80
No. 2.....	69	95.00	6,655.40
No. 3.....	70	65.20	4,564.00
No. 4.....	75	75.40	5,655.00
No. 5.....	158	81.00	12,802.80
No. 6.....	153	87.20	13,367.60
No. 7.....	285	84.20	23,997.00
Printers—			
No. 1.....	112	85.20	9,542.40
No. 2.....	114	87.20	9,940.80
No. 3.....	150	75.00	11,240.00
No. 4.....	207	77.40	16,021.80
No. 5.....	232	87.20	20,230.40
Commercial—			
No. 1.....	75	82.40	6,180.00
No. 2.....	² 184	84.40	15,529.60
No. 3.....	780	97.80	76,350.00
Supercalendered:			
Publishers—			
No. 1.....	60	81.40	4,884.00
No. 2.....	268	87.60	23,476.80
No. 3.....	1,550	45.80	70,990.00
No. 4.....	4,450	49.00	218,050.00
No. 5.....	7,500	47.20	354,000.00
No. 6.....	13,000	47.00	611,000.00
No. 7.....	13,400	45.40	606,360.00
Printers—			
No. 1.....	100	75.80	7,580.00
No. 2.....	263	87.40	22,986.20
No. 3.....	266	87.40	23,248.40
No. 4.....	341	91.00	31,036.00
No. 5.....	543	89.40	48,544.20
Commercial—			
No. 1.....	³ 20	94.20	1,884.00
No. 2.....	⁴ 175	82.40	14,420.00

¹ These tonnages are on contracts made in November and December, 1916, for deliveries during 1917, with exceptions as noted.

² Contract for this tonnage was dated Sept. 27, 1916.

³ This tonnage was for the six-month's period from Dec. 1, 1916, to June 1, 1917.

⁴ Contract for this tonnage was dated Oct. 30, 1916.

The table shows that, in general, the increases in the net prices per ton were largest for commercial users and smallest for publishers. This is especially striking in the case of supercalendered paper. Nevertheless, the prices per ton shown on contracts for supercalendered with publishers using over 1,500 tons show increases ranging from \$45.40 to \$49. The five contracts for over 1,500 tons of supercalendered were all with publishers of periodicals.

The increase in the amount to be paid for the entire tonnage taken by two of these purchasers of supercalendered paper is over \$600,000 each. The increase to be paid by another is over \$350,000 and by another over \$200,000.

It should be understood, of course, that the purchasers listed in the table above do not all buy from the same manufacturer. However, for machine-finish paper, publishers Nos. 1, 5, 6, and 7, printers Nos. 1, 2, and 5, and commercial user No. 1 are all buying from the same company, and for supercalendered, publishers Nos. 1 to 7, inclusive, printers Nos. 2 to 5, inclusive, and commercial user No. 2 are all buying from this same manufacturer. It will be seen from the table that the prices of this manufacturer vary considerably to different purchasers.

Section 6.—DISPARITY AND DISCRIMINATION IN PRICES IN 1916 AND 1917.

Disparity and discrimination in prices to different consumers of book paper were quite marked during 1916 and continued into 1917. By disparity in prices is meant different prices charged purchasers for the same weight and grade of paper by different sellers, and by discrimination in prices is meant different prices charged purchasers for the same weight and grade of paper by the same seller.

Disparity in prices.—Most of the cases of disparity were due to the general refusal of manufacturers and jobbers to supply paper to any except their regular customers. As there was no competition between sellers, each was able to charge very high prices without fear of losing his customers' business. A number of publishers gave information on this point.

The publisher of an important New York magazine stated that he was unable to purchase any considerable quantity of paper, except from the one manufacturer from whom his company had been buying.

The publisher of another important New York magazine stated that he had been buying all his paper from one manufacturer. During 1916 he tried to buy elsewhere, but was unable to do so.

The publisher of a number of New York magazines stated that a regular customer of one manufacturer applying to another manufacturer for paper would be refused by that manufacturer.

The publisher of a number of trade journals in New York stated that he was unable to buy from anyone except those from whom he had been buying regularly.

A New York publisher of school books stated that he could not buy from other concerns than those from which he had been buying in the past. Whenever he made application to a new concern he was invariably informed that they had so many unfilled orders on hand that they were unable to supply a new customer.

A book publisher in New York stated that he could not get any paper from new sources. He thought this was due to each seller trying to supply his regular customers and not to agreement.

The publisher of an important weekly in New York stated that he had been unable to buy from any other sources than those houses with which he had been dealing for a number of years. Other manufacturers and jobbers would give him quotations, but their conditions as to time and delivery were such that he could not accept.

As a result of the general refusal during 1916 of manufacturers to sell except to their own regular customers, the increased demand made it possible for them to raise prices accordingly. This caused much greater variations between the average net prices charged by the different manufacturers than was the case before. For example, the average net prices charged publishers for supercalendered paper on contracts made in the second half of 1916 by two eastern manufacturers producing practically the same grade of paper were \$5.23 and \$6.04 per 100 pounds, while in 1915 the prices of the same two companies were \$3.51 and \$3.57 per 100 pounds. A third eastern manufacturer charged \$6.58 per 100 pounds in the second half of 1916 and \$3.79 in 1915. Thus, in the second half of 1916 the difference between the lowest and highest average net contract prices per 100 pounds for these three companies was \$1.35, while in 1915 it was only 28 cents.

Taking into consideration all the eastern manufacturers from whom prices were secured, the lowest average net price of any company on contracts with publishers for supercalendered paper during the second half of 1916 was \$5.23 per 100 pounds, while the highest was \$9.10. In 1914 the lowest was \$3.54 and the highest was \$4.78. The difference between the lowest and highest average net prices per 100 pounds for all companies in the second half of 1916 was \$3.87, while in 1914 it was only \$1.24.

Similar differences existed among western manufacturers. For example, the average net prices charged jobbers for machine-finish paper on contracts made in the second half of 1916 by three western manufacturers, producing practically the same quality of paper, were \$6.46, \$7.41, and \$9.29 per 100 pounds, while in 1915 the prices charged by the same companies were \$3.34, \$3.39, and \$3.38 per 100 pounds. The difference between the lowest and highest prices in the second half of 1916 for these three companies was \$2.83, while in 1915 it was only 5 cents.

Taking all the western manufacturers from whom prices were secured, the lowest average net price of any company on contracts with jobbers for machine-finish paper in the second half of 1916 was \$6.46 per 100 pounds and the highest was \$9.29. In 1914 the lowest was \$3.23 and the highest was \$4.43. Thus, the difference between the lowest and highest average net prices per 100 pounds for all companies in the second half of 1916 was \$2.83, while in 1914 it was only \$1.20.

Discrimination in prices.—In addition to disparity in prices as between different sellers, there were also discriminations in the prices charged by the same seller to different classes of consumers. As a general rule, publishers were charged lower prices than job printers or commercial users, while the publishers of periodicals were charged lower prices than the publishers of books. The reason usually given for this discrimination was that printers and commercial users could shift the increased price to their customers to a greater extent than could publishers. As between publishers, it was claimed that it was easier to increase the prices of books than the subscriptions and advertising rates of periodicals. This is denied, however, by some of the book publishers, especially the publishers of schoolbooks, who have long contracts at a fixed price for the sale of their books in certain States.

A number of manufacturers, jobbers, and publishers gave information as to the discrimination between the different classes of consumers. A large eastern manufacturer stated that since the price advance began a distinction has been made by his company between publishers and other consumers. The price to publishers was fixed at from \$5.50 to \$6 per 100 pounds, and to others from \$8 to \$8.50 per 100 pounds. This was done in the company's own interest, as it was believed that the publishers would, to a large extent, be forced out of business if compelled to pay in excess of \$6 for their paper. Job printers and others, however, could readily transfer the increased cost to their customers.

Another manufacturer stated that his company thought it was better policy to favor the publishers of periodicals, since the publishers of books could raise the prices of books more easily than the price of magazines could be raised. Besides, periodicals usually get their paper under contract and take the paper regularly throughout the year.

A jobber with several branch houses and the exclusive agency of a large manufacturer in his own territory stated that this manufacturer made it his policy to charge less to publishers than to printers and lithographers on account of the publishers' inability to pass the increased cost on to the public.

An important New York jobber stated that manufacturers were charging much lower prices to magazine publishers than to book publishers, since the latter could raise the prices of their books while the former could not raise the price of their magazines.

A New York publisher of both magazines and books stated that his company secured the paper used in their periodicals at a lower price than that used in miscellaneous publications, the reason being that the manufacturers find it very convenient to have regular consumers, like magazines.

A New York book publisher stated that his company could not get the terms that publishers of periodicals obtained. A jobber told him this situation was due to the fact that the demand of the periodicals was regular.

A book publisher, who also publishes an important New York weekly, stated that paper for periodicals could be secured at decidedly lower prices than paper used for miscellaneous publications, the reason being that the manufacturer supplying periodicals has a steady patronage and can keep the production going at a uniform rate. He was told by representatives of a large manufacturer that 42 per cent of the production of the company was sold to periodicals, the remainder going for miscellaneous purposes. The paper for the periodicals enabled the mills to keep their machines moving steadily, and the tonnage for miscellaneous purposes netted the company a large profit.

A New York book publisher stated that he was being charged a higher price than publishers of periodicals, the reason assigned being that the manufacturers desire as customers concerns that take a regular supply, and in order to hold this class of trade lower prices are quoted. As a matter of fact, this publisher stated, book publishers were no more able to advance their prices than were the publishers of periodicals, because there were certain book publishers

who had contracts at prices low enough to enable them to keep the price of the popular novel down to \$1.50 or even \$1.35.

The publisher of two magazines in New York, who was buying his paper in the open market during 1916, stated that the manufacturer from whom he was buying shaded the price to his company from \$1 to \$1.50 per 100 pounds as compared with the prevailing open-market price.

A number of cases of discriminations in prices charged by one manufacturer to different purchasers are given in the following table:

TABLE 18.—*Net prices per 100 pounds charged by a certain manufacturer on contracts made in November and December, 1916, for delivery of white book paper at purchasers' sidewalk during 1917.*

Grade and purchaser.	Under contract.	Per 100 pounds.	Grade and purchaser.	Under contract.	Per 100 pounds.
Machine finish:			Supercalendered:		
Publishers—	<i>Tons.</i>		Publishers—	<i>Tons.</i>	
No. 1.....	158	\$7.52	No. 1.....	60	\$7.76
No. 2.....	183	7.76	No. 2.....	368	7.92
No. 3.....	285	7.76	No. 3.....	1,550	5.82
Printers—			No. 4.....	4,450	6.04
No. 1.....	112	7.94	No. 5.....	7,500	5.79
No. 2.....	114	8.00	No. 6.....	13,000	5.92
No. 3.....	232	7.94	No. 7.....	13,400	5.92
Commercial, No. 1.....	75	7.56	Printers—		
			No. 1.....	263	8.19
			No. 2.....	266	8.25
			No. 3.....	341	8.15
			No. 4.....	543	8.19
			Commercial, No. 1.....	175	8.00

¹ Contract for this tonnage was dated October 30, 1916.

The table shows that the prices charged to different customers for machine-finish paper did not vary greatly. For supercalendered, however, there were large differences between the prices charged to different customers. For example, publisher No. 3 paid \$5.82 per 100 pounds while printer No. 2 paid \$8.25 per 100 pounds. Publishers Nos. 3 to 7, inclusive, purchase the paper for their periodicals.

The manufacturer stated that it was the policy of his company to charge the publishers of periodicals much less during 1916 than other customers, otherwise the former would be forced out of business, while other customers could merely shift the increased price of paper onto their own customers.

Section 7. SUMMARY.

It has been shown in the preceding sections that there were very large increases in the prices of book paper during 1916 and likewise in jobbers' gross margins of profit.

In this section the extent of these increases is summarized and the principal causes are discussed.

Increase in prices.—The general rise in the prices of book paper began about February, 1916, and continued throughout the year. In January and February, 1917, the prices remained practically stationary. During March, April, and May, there was a gradual but slight decline in prices.

The increase in the average prices of white book paper delivered at the purchasers' sidewalk on contracts made by 23 manufacturers

during the second half of 1916, as compared with 1915, were 85 per cent on machine finish, 66 per cent on sized and supercalendered, and 65 per cent on coated. For the contract sales of 21 jobbers the increases were 83 per cent on machine finish, 88 per cent on sized and supercalendered, and 56 per cent on coated. Open-market prices increased to an even greater extent, especially on machine finish and supercalendered paper, the increase in many cases being over 100 per cent.

The manufacturers increased prices on contracts to publishers less than to jobbers. For example, the 23 manufacturers, from whom prices were secured, increased the prices during the second half of 1916, as compared with 1915, on machine finish paper 77 per cent to publishers and 93 per cent to jobbers; on supercalendered, 64 per cent to publishers and 82 per cent to jobbers; and on coated, 64 per cent to publishers and 67 per cent to jobbers.

Causes of increase in prices.—The rise in prices was preceded and accompanied by an increasing demand. This heavy demand began during the fall of 1915 and reached its culmination during the fall of 1916. There has been a decided slackening up of demand during 1917.¹ During the summer and fall of 1916 many of the mills were from several weeks to two or three months behind their orders, although producing more paper than ever before. During the slack season of 1917 they have been able to catch up with their orders and accumulate stocks.

A large part of the increase in demand during 1916 was due to increased consumption, but some of it was due to the purchasing of paper for storage as a protection against the possibility of future higher prices and shortage of paper. This was done by both publishers and jobbers. Individually, the increase in stocks may have been comparatively small, but collectively it must have been quite large. This is borne out by the statements of a number of jobbers and publishers.

A western jobber stated that there was a tremendous amount of overbuying in 1916, both by jobbers and consumers. This was true of his own company and practically all the important jobbers and consumers with whom they had business relations. For example, a customer who ordered a large consignment of paper in 1916, recently returned a car of the paper which did not conform to specifications, and expressed a desire to have delivery of the corrected order postponed for six months as his warehouse was so full that he had no place to store the paper, and besides would have no use for it for several months. This jobber stated (May, 1917) that consumers were using their reserve stocks instead of placing new orders, which resulted in a softening of the market. (See Exhibit 5, pp. 115-118.)

A book publisher in New York City stated in February, 1917, that his company formerly carried no stock, but that they were then carrying about \$50,000 worth of paper in stock as a protection.

A publisher of two periodicals in Buffalo stated that he secured and stored enough paper in 1916 under a low-priced contract to meet his requirements up to July, 1917.

The publisher of a New York City magazine having a circulation of about 150,000 copies per month stated early in January, 1917,

¹See Table 2 for shipments by months.

that his company then had in stock sufficient paper to supply all their needs until August 1, 1917. All this paper had been secured during 1916 under a low-priced contract, which did not limit the tonnage to be taken. This company had made no effort to secure a new contract and would not do so until June or July. This publisher also stated that he thought every other publishing house that had been able to get the paper had in stock a much larger quantity of paper than was customary. This had undoubtedly created fictitious prices in 1916, but would lower prices in 1917, because these publishers would not have to buy for some time. (See exhibit 6, pp. 119-122.)

Other jobbers and publishers gave similar information.

Manufacturers took advantage of the increasing demand, and by concerted action through their organization, the Bureau of Statistics, and in other ways, were able to create a panic market, which forced prices up higher than they would have gone in response to the actual increase in consumption.¹

Increase in jobbers' gross margins.—Jobbers' gross margins of profit on contracts made during the second half of 1916 as compared with 1915 increased 110 per cent on machine-finish paper, 230 per cent on supercalendered, and 18 per cent on coated. On open-market sales for direct shipment the increase in jobbers' average gross margins in the fourth quarter of 1916 over the third quarter of 1915 on machine finish ranged from 117 per cent in the Cleveland group to 492 per cent in Boston; on supercalendered from 29 per cent in Boston to 524 per cent in the Philadelphia group; and on coated from a decrease of 18 per cent in the Cincinnati group to an increase of 114 per cent in Chicago.

Causes of increase in jobbers' gross margins.—There is little competition between the jobbers in one large city and those in another. For example, New York jobbers, as a general rule, do not solicit business in Boston, nor Boston jobbers in New York. In explanation of this custom, a New York jobber stated that the jobbers in Boston and New York recognized that those in each city had spent their money in developing their own territory and that it was not good business ethics for those in either city to cut into the other's market. The same holds true generally for Philadelphia, Baltimore, Cleveland, Detroit, Chicago, Cincinnati, Louisville, St. Louis, etc. Some jobbers, however, maintain branches in two or more of these cities, and these branches, of course, solicit business wherever they are located.

During 1916 there was practically no competition among jobbers in the same city. As a usual thing, consumers could not buy anywhere except where they had been buying. In refusing to accept the orders of new customers, jobbers generally stated that they could not get more than enough paper to supply their regular customers. The result was that jobbers could and did charge any price they wished, and as a consequence their profits increased enormously.²

¹ For a discussion of the concerted activities of manufacturers, see Chapter IV.

² For instances of inability of publishers to buy elsewhere except from their regular source, see pp. 5 to 58.

CHAPTER III.

COSTS, SALES, AND PROFITS OF MANUFACTURE.

Section 1. INTRODUCTION.

The accountants of the commission obtained directly from the books of 21 principal book paper manufacturing companies operating 39 paper mills in the United States, their costs, sales, and profits for the years 1915 and 1916. Similar data were obtained for the 6 coating mills, 16 soda pulp mills, and 9 sulphite mills operated by these companies. The costs and profits of 10 companies operating 24 paper mills were also obtained for the first quarter of 1917.

Considerable variation was found in the methods of keeping costs employed by the different companies so that considerable revision was necessary to put them on a uniform basis and bring them into line with the best accounting practice.

It was found that costs were kept for the whole production of each mill regardless of what the mill made, there being no attempt to segregate costs according to the grade of paper manufactured. Hence the cost figures obtained by the commission include some grades of paper that would not be classed as book paper. Such other grades, however, are not of sufficient quantity or sufficiently different in character or cost to materially impair the value of the figures. Furthermore, the proportion of these other grades to the whole is about the same for the years 1915 and 1916, so that the comparison of the two years is not greatly affected.

Items eliminated from costs.—With one exception all of the book paper companies making their own soda pulp and sulphite charged these raw materials into paper costs at a profit. This profit represents the difference between the cost of production of the pulp and the market price, or an arbitrary figure based on market price, at which they were charged into paper costs. In order to arrive at the true cost of making paper it was necessary to eliminate such transfer profits.

Only one or two companies were found which were using pulp wood cut from their own lands in making soda pulp or sulphite and this wood was found to be charged in at a fair figure so that no readjustment was necessary in wood costs.

One company was found which was charging soda pulp and sulphite purchased under favorable conditions into the cost of paper at the market price which was much higher than the price paid. The costs of this company were revised so as to eliminate such profits.

Most of the book paper companies treat bond interest as a cost item. In arriving at the true cost of manufacture the commission has eliminated bond interest and other forms of interest from the cost as shown by the books of the book paper companies.

Readjustment of depreciation.—The practice of book-paper companies with respect to depreciation varies considerably. Some do not treat depreciation as a cost item, but charge off to profit and loss a lump sum, usually whatever they can afford, at the end of the year. Other companies make a liberal charge for depreciation on their cost sheets, and where they produce their own soda pulp and sulphite distribute the depreciation back to these items. This practice has been followed by the commission.

In order to arrive at a fair charge for depreciation the commission has substituted computations of its own for those shown by the books of the companies. It was found that several of the best managed mills allowed about 5 per cent upon their investment for depreciation, which figure has been adopted by the commission.

Figured on a fair cost of investment per ton of output this rate of depreciation amounts to the following for 1915 and 1916:

Depreciation per ton of product allowed by the commission.

	1915	1916
Book-paper mills.....	\$2.00	\$1.75
Coating mills.....	1.75	1.50
Sulphite mills.....	1.50	1.25
Soda mills.....	1.50	1.25

The depreciation used for the first quarter of 1917 was the same as for the year 1916.

The smaller amount of depreciation per ton of product in 1916, as compared with 1915, is due to the fact that production increased on the average about 20 per cent. The total depreciation computed by the commission for all the mills whose costs were taken was about \$30,000 more in 1915 than the depreciation charged off by the companies and about \$86,000 less in 1916, on a total of over \$2,000,000. The latter being a prosperous year some companies charged off depreciation more liberally than they did in the preceding year.

The costs at which soda pulp and sulphite were charged into paper by the commission and paper into coated paper include the above depreciation charges.

Miscellaneous adjustments.—The profit-and-loss statements of the book-paper manufacturers as a rule contained a number of items which the commission has either debited or credited to costs, such as bonuses to employees, receipts from sales of screenings, waste materials, by-products, etc. In some cases general administrative expenses were also treated in this manner. Bad debts were charged to selling expenses where not already handled in this manner.

Section 2. BOOK-PAPER MILL COSTS, 1915 AND 1916.

The itemized costs of 39 principal book-paper mills producing more than 80 per cent of the total output of book paper in the United States were obtained by the commission and have been averaged for the years 1915 and 1916. As stated above, most of these mills produce various other grades of paper besides those classed as book paper, but the inclusion of these grades in the costs does not materially impair their value, especially for comparative purposes.

Table 19 below shows the average costs of the 39 book-paper mills by items for 1915 and 1916, together with the increase or decrease per ton and percentage of increase or decrease in the cost of different items. These figures include machine finish and supercalendered paper, but exclude coated paper, which is finished in mills especially adapted to this process. The average costs of coated paper are given in the following section. (See p. 70.)

TABLE 19.—Average cost of production per ton of paper for 39 principal book-paper mills, 1915 and 1916.

	1915	1916	Increase, 1916 over 1915.	Per cent of increase.
Tons produced.....	644,902	772,532	127,630	19.79
Stock:				
Soda pulp.....	\$13.06	\$14.30	\$1.22	9.33
Sulphite.....	17.01	18.81	1.80	10.58
Waste paper.....	5.79	7.65	1.86	32.12
Fillers.....	2.28	2.21	.07	3.07
Alum.....	.68	.84	.16	23.53
Rosin.....	.48	.72	.24	50.00
Color.....	.24	.48	.24	100.00
Miscellaneous.....	1.12	1.61	.49	43.75
Total.....	40.68	46.62	5.94	14.60
Conversion:				
Labor.....	8.68	9.63	.95	10.94
Fuel.....	2.88	3.25	.37	12.85
Repairs.....	1.59	1.56	.03	1.89
Wires, felts, belting, and lubricants.....	1.31	1.43	.12	9.16
Packing and shipping.....	1.42	1.58	.16	11.27
Miscellaneous.....	1.29	1.52	.23	17.83
Total.....	17.17	18.97	1.80	10.48
General expense:				
Taxes and insurance.....	.69	.73	.04	5.80
Administrative.....	1.70	1.80	.10	5.88
Total.....	2.39	2.53	.14	5.86
Factory cost, without depreciation.....	60.24	68.12	7.88	13.06
Depreciation.....	2.00	1.75	.25	12.50
Total cost.....	62.24	69.87	7.63	12.26

¹ Decrease.

The table shows that the average cost of production of the 39 book-paper mills rose from \$62.24 per ton in 1915 to \$69.87 per ton in 1916, an increase of \$7.63 per ton, or 12.26 per cent. Of this increase, \$5.94 was attributable to increases in stock items and \$1.80 to increases in conversion items. The only item of stock which showed a decline was fillers and the only item of conversion showing a decline was repairs. The largest increases in percentages, as a rule, were in such items as color and rosin, but the actual increases in

dollars for these items were very small since they constitute a very small proportion of the total cost.

The increase in costs in 1916 occurred largely in the latter half of the year. When averaged with the lower costs for the first half of the year, the increase for the whole year 1916 was not especially large.

Costs for first quarter of 1917.—Costs were obtained from 10 companies operating 24 paper mills for the first quarter of 1917. The average cost of these mills was \$60.37 per ton in 1915, \$65.96 per ton in 1916, and \$83.31 per ton in the first quarter of 1917. The increase for the first quarter of 1917 over 1915 was \$22.94 per ton, or 38 per cent. In contrast as shown on page 78, profits per ton increased during the same period from \$10.31 to \$37.21, or about 261 per cent.

The following tabulation shows the low, high, and average costs per ton of paper of the 24 mills for 1915, 1916, and the first quarter of 1917:

Year.	Low.	High.	Average.
1915.....	\$50.34	\$78.59	\$60.37
1916.....	55.11	92.21	65.96
1917 (first quarter).....	62.19	141.41	83.31

Percentage of cost.—The percentage of the total cost of the 39 book-paper mills attributable to the particular items of expense in 1915 and 1916 is shown by Table 20 following.

TABLE 20.—Percentage of total cost of producing paper of 39 principal book-paper mills attributable to particular items, 1915 and 1916.

	1915	1916	Increase, 1916 over 1915.
Tons produced.....	644,902	772,532	127,630
Stock:	<i>Per cent.</i>	<i>Per cent.</i>	<i>Per cent.</i>
Soda pulp.....	21.02	20.47	¹ 0.55
Sulphite.....	27.33	26.92	¹ .41
Waste paper.....	9.30	10.95	1.65
Fillers.....	3.66	3.16	¹ .50
Alum.....	1.09	1.20	.11
Rosin.....	.77	1.03	.26
Color.....	.39	.69	.30
Miscellaneous.....	1.80	2.31	.51
Total.....	65.36	66.73	1.37
Conversion:			
Labor.....	13.95	13.78	¹ .17
Fuel.....	4.63	4.65	.02
Repairs.....	2.55	2.23	1.32
Wires, felts, belting, and lubricants.....	2.10	2.05	¹ .05
Packing and shipping.....	2.28	2.26	¹ .02
Miscellaneous.....	2.08	2.18	.10
Total.....	27.59	27.15	1.44
General expense:			
Taxes and insurance.....	1.11	1.04	1.07
Administrative.....	2.73	2.58	1.15
Total.....	3.84	3.62	1.22
Factory cost, without depreciation.....	96.79	97.50	.71
Depreciation.....	3.21	2.50	1.71
Total cost.....	100.00	100.00	.....

¹ Decrease.

The percentage of the total cost attributable to particular items did not vary much in the two years. Stock items represent about 66 per cent of the total cost and conversion items about 27 per cent. The remaining 7 per cent is covered by general expense and depreciation. The most important items of stock are soda pulp, sulphite, and waste paper. Together they represent more than half of the total cost of making paper. The most important conversion item is labor, which represents nearly 14 per cent of the total cost.

Paper costs by groups of mills.—Considerable variation exists in the costs of the 39 book-paper mills due to differences in the quality and specifications of paper made, to the efficiency of management, and especially in 1916 to whether they made or did not make their own soda pulp and sulphite.

Table 21 following groups the 39 mills into 9 classes according to costs and shows for each class the number of mills included, tons produced, percentage of the total tonnage of the 39 mills, and average cost per ton:

TABLE 21.—Cost of production of paper in 39 principal book-paper mills arranged by groups according to cost per ton, 1915 and 1916.

Group.	1915				1916			
	Number of mills.	Tons produced.	Per cent of total.	Average cost per ton.	Number of mills.	Tons produced.	Per cent of total.	Average cost per ton.
I. \$50 and less than \$55.....	5	116,718	18.10	\$52.19	6	210,639	27.27	\$57.38
II. \$55 and less than \$60.....	4	147,094	22.81	57.03	5	136,463	17.66	63.92
III. \$60 and less than \$65.....	12	176,327	27.37	62.05	5	136,463	17.66	63.92
IV. \$65 and less than \$70.....	8	85,112	13.20	67.51	1	35,838	4.64	67.45
V. \$70 and less than \$75.....	4	57,038	8.85	71.85	8	128,040	16.57	72.58
VI. \$75 and less than \$80.....	4	50,971	7.90	77.11	9	112,919	14.62	77.88
VII. \$80 and less than \$85.....	2	11,442	1.77	81.51	4	92,380	11.96	81.77
VIII. \$85 and less than \$90.....					4	33,732	4.37	87.62
IX. \$90 and over.....					2	22,521	2.91	95.57
Total.....	39	644,902	100.00	62.24	39	772,532	100.00	69.87

The table shows that in 1915, 29 mills producing more than 81 per cent of the total tonnage had a cost below \$70 per ton, while in 1916, 29 mills producing about 81 per cent of the tonnage had a cost less than \$80 per ton. In 1915 none of the mills had a cost above \$85 a ton, while in 1916 the costs per ton of six mills were above this figure.

Of the 24 mills whose costs were obtained for the first quarter of 1917, 2 would come in Group III, 3 in Group IV, 2 in Group V, none in Group VI, 2 in Group VII, none in Group VIII, and 15 in Group IX. Of these 15 mills, 8 had a cost between \$90 and \$100, 5 between \$100 and \$111, and 2 a cost of more than \$130 per ton.

Paper costs by individual mills.—The variation in the important items of cost of the 39 mills is shown by Table 22 which gives the figures by mills for 1915 and 1916. The mills are arranged according to cost, beginning with the lowest, so that the same mill may have a different number in 1916 than in 1915.

TABLE 22.—*Cost of production per ton of paper of 39 principal book-paper mills, by mills, 1915 and 1916.*

Mill number.	Stock.					Conversion.			General expense, including depreciation.	Total cost.
	Soda pulp.	Sulphite.	Waste paper.	Miscellaneous.	Total.	Labor.	Miscellaneous.	Total.		
1.....	\$15.37	\$13.66	\$2.41	\$3.55	\$34.99	\$6.38	\$5.11	\$11.49	\$3.86	\$50.34
2.....	13.24	19.32	.....	3.65	36.21	5.84	5.41	11.25	3.75	51.21
3.....	6.82	21.00	5.74	2.66	36.22	5.32	5.90	11.22	4.62	52.06
4.....	25.68	7.51	.....	3.43	36.62	6.07	7.39	13.46	3.91	53.99
5.....	23.62	8.74	.....	3.13	35.49	7.65	7.80	15.45	3.75	54.60
6.....	13.34	16.97	4.25	3.44	38.00	7.86	6.05	13.91	4.10	56.01
7.....	18.43	15.37	.23	4.11	38.14	7.77	7.53	15.30	3.51	56.95
8.....	17.20	18.29	.....	3.85	39.34	7.22	6.29	13.51	4.17	57.02
9.....	5.78	19.86	4.19	7.76	37.59	7.30	8.83	16.03	5.32	58.94
10.....	.....	2.21	26.10	5.33	33.64	12.70	9.72	22.42	4.33	60.39
11.....	13.27	22.69	.12	3.61	39.69	9.08	8.28	17.36	3.62	60.67
12.....	.....	22.40	9.70	5.56	37.66	7.74	9.30	17.04	6.10	60.80
13.....	6.77	14.06	14.27	3.99	39.09	12.26	7.02	19.28	3.47	61.84
14.....	12.16	19.18	7.77	3.98	43.09	6.21	7.91	14.12	4.91	62.12
15.....	35.67	.....	2.15	4.23	42.05	9.44	7.23	16.67	4.03	62.75
16.....	32.88	2.37	2.45	3.76	41.46	10.80	6.92	17.72	4.09	63.27
17.....	5.72	16.59	14.40	5.88	42.59	8.31	8.02	16.33	4.44	63.36
18.....	4.80	11.48	17.67	4.71	38.66	12.04	6.92	18.96	5.79	63.41
19.....	23.73	6.66	2.72	3.98	42.09	9.26	8.18	17.44	4.02	63.55
20.....	20.91	11.36	10.44	3.98	46.67	6.32	6.98	13.30	4.17	64.14
21.....	16.91	10.35	13.26	4.79	45.31	8.11	7.14	15.25	4.08	64.64
22.....	.....	21.49	9.94	9.05	40.48	10.46	10.66	21.12	4.56	66.16
23.....	12.11	17.22	.....	4.81	34.14	17.65	8.51	26.16	6.03	66.33
24.....	12.90	29.52	.05	5.35	47.82	7.09	7.16	14.25	4.79	66.86
25.....	16.84	13.05	11.70	4.62	46.21	8.79	8.01	16.80	4.23	67.24
26.....	1.27	16.66	20.26	5.74	43.93	10.81	8.66	19.47	4.06	67.46
27.....	4.98	12.46	19.84	5.68	42.96	11.39	8.24	19.63	5.45	68.04
28.....	.....	28.14	10.61	3.88	42.63	11.40	9.39	20.79	5.26	68.66
29.....	16.59	12.69	10.44	5.68	45.40	11.73	7.52	19.25	4.11	68.76
30.....	8.78	17.95	9.19	6.75	42.67	13.76	10.31	24.07	4.30	71.04
31.....	.....	21.67	9.75	8.87	40.29	15.24	10.80	26.04	5.19	71.52
32.....	4.06	25.75	13.18	4.77	47.76	8.89	10.32	19.21	4.77	71.74
33.....	18.59	14.67	.36	8.61	42.23	12.22	14.06	26.28	3.40	71.91
34.....	15.27	17.08	10.98	5.47	48.80	11.76	10.34	22.10	4.26	75.16
35.....	14.20	15.04	13.06	4.91	47.21	11.96	12.10	24.06	4.16	75.43
36.....	12.96	14.76	9.13	7.94	44.79	6.67	19.19	25.86	7.20	77.85
37.....	9.00	37.91	1.71	4.82	52.94	8.98	10.77	19.75	5.90	78.59
38.....	11.38	25.14	3.00	8.24	48.36	12.29	12.24	24.53	8.18	81.07
39.....	11.62	17.78	4.43	6.20	40.03	19.66	16.44	36.10	6.24	82.37
Average.....	13.08	17.01	5.79	4.80	40.68	8.68	8.49	17.17	4.29	62.24

TABLE 22.—Cost of production per ton of paper of 39 principal book-paper mills, by mills, 1915 and 1916—Continued.

1916.

Mill number.	Stock.					Conversion.			General expense, including depreciation.	Total cost.	
	Soda pulp.	Sulphite.	Waste paper.	Miscellaneous.	Total.	Labor.	Miscellaneous.	Total.			
1.	\$28.88	\$4.74	.....	\$3.81	\$37.43	\$6.72	\$6.33	\$13.05	\$4.63	\$55.11
2.	16.56	15.34	\$2.58	3.73	38.21	7.08	6.01	13.09	3.97	55.27	
3.	13.00	23.77	.....	3.41	40.18	6.31	5.21	11.52	4.11	55.81
4.	16.86	18.58	.....	3.56	38.99	7.55	7.18	14.73	4.65	58.37
5.	19.51	13.66	.06	4.65	37.90	9.52	7.99	17.51	3.11	58.52	
6.	24.92	9.93	.....	3.53	38.38	7.86	7.85	15.71	4.46	58.55
7.	14.95	19.01	6.05	3.66	43.67	7.76	6.49	14.25	4.57	62.49	
8.	32.36	.....	1.12	7.02	40.50	10.75	7.78	18.53	3.60	62.83
9.	31.44	5.79	.61	4.88	42.72	11.44	6.60	18.04	3.51	64.27	
10.	18.26	19.56	.06	3.69	41.57	10.72	9.14	19.86	3.33	64.76	
11.	.....	20.83	8.80	9.53	39.16	7.93	12.00	19.93	5.80	64.99
12.	7.95	25.86	11.52	3.56	48.89	6.42	7.29	13.71	4.85	67.45	
13.	13.66	28.66	.39	6.46	49.17	8.09	8.48	16.57	4.37	70.11	
14.	26.52	10.90	11.84	4.21	53.47	6.23	7.46	13.69	3.40	70.56	
15.	4.82	14.92	22.75	5.57	48.06	11.51	7.04	18.55	5.39	72.00	
16.	20.78	12.29	15.91	5.66	54.64	7.99	7.50	15.49	3.56	73.69	
17.	5.10	28.35	8.47	9.33	51.25	7.29	10.58	17.87	4.69	73.81	
18.	27.76	13.54	3.32	4.80	49.22	11.45	9.61	21.06	3.63	73.91	
19.	10.70	26.89	9.64	4.33	51.56	7.91	9.30	17.21	5.48	74.25	
20.	.....	27.24	16.33	4.60	48.17	11.81	10.34	22.15	4.50	74.82
21.	.....	25.90	14.06	8.18	48.14	13.07	10.35	23.42	3.78	75.34
22.	.....	20.38	19.18	6.46	46.02	12.68	12.48	25.16	4.26	75.44
23.	.....	18.22	15.18	6.81	50.80	11.06	10.62	21.68	3.36	75.84
24.	.....	10.59	.....	.....	.....	.....	.....	.....	.....	.....
25.	.....	1.62	42.64	5.53	49.79	12.87	10.87	23.74	3.88	77.41
26.	5.42	19.11	23.25	5.03	52.81	11.96	9.78	21.74	3.05	77.60
27.	20.83	14.03	.33	12.86	48.06	13.61	13.57	27.18	3.02	78.25
28.	7.14	18.01	24.33	6.07	55.55	9.47	9.95	19.42	3.38	78.35
29.	20.01	17.80	14.35	4.84	57.00	9.20	8.75	17.95	3.47	78.42
30.	16.29	17.32	14.51	6.33	54.45	13.23	8.34	21.57	3.69	79.71
31.	1.50	20.80	25.07	6.94	54.31	12.77	10.42	23.19	3.69	81.19
32.	17.56	15.31	17.88	5.36	56.11	11.53	10.58	22.11	3.51	81.73
33.	8.75	39.95	.84	6.17	55.71	9.90	11.82	21.72	4.72	82.15
34.	18.17	19.16	13.42	6.66	57.41	11.27	11.06	22.33	3.42	83.16
35.	6.94	15.79	26.50	8.04	57.27	14.05	10.07	24.12	5.18	86.57
36.	14.36	26.77	2.12	9.92	53.17	14.04	13.32	27.36	7.75	88.28
37.	17.73	19.31	3.57	5.99	46.60	17.08	18.22	35.30	6.57	88.47
38.	23.21	24.40	6.03	53.64	16.04	14.50	30.54	5.40	89.58
39.	5.12	29.06	21.79	5.26	61.23	10.59	11.53	22.12	7.86	92.21
40.	15.79	21.70	12.33	8.92	58.74	11.52	19.58	31.10	9.97	92.32
Average.....	14.30	18.81	7.65	5.86	46.62	9.63	9.34	18.97	4.28	69.87	

The wide variations in the costs of soda pulp, sulphite, and waste paper, shown by the table, are due mainly to the relative proportions of each used and also to the costs to the manufacturers of producing or buying these materials. The variation in the labor costs is due to considerable extent to the grade of book paper made. More labor is required to make supercalendered paper than to make machine finish.

Section 3. COATED-PAPER MILL COSTS, 1915 AND 1916.

Six of the book-paper companies whose costs were obtained operated one coating mill each. The costs of these six coating mills were kept separately from the costs of their other paper mills and have been used to compute an average cost of production for coated paper for the years 1915 and 1916. Table 23 shows the average costs by items together with the increase and percentage of increase of 1916 over 1915. The machine-finish paper used for coating is charged into the coated paper at cost, including depreciation.

TABLE 23.—Average cost of production per ton of coated paper for 6 coating mills, 1915 and 1916.

	1915	1916	Increase, 1916 over 1915.	Per cent of increase.
Tons produced.....	83,024	100,920	17,896	21.54
Stock:				
Paper.....	\$42.54	\$53.58	\$11.04	25.95
Clay.....	3.26	3.25	1.01	1.31
Casein.....	7.56	9.68	2.12	28.04
Satin white.....	1.92	1.73	1.19	19.80
Miscellaneous.....	2.59	4.77	2.18	84.17
Total.....	57.87	73.01	15.14	26.16
Conversion:				
Labor.....	9.75	11.63	1.88	19.28
Fuel.....	2.01	2.06	.05	2.49
Repairs.....	1.43	1.52	.09	6.29
Belting and lubricants.....	.12	.12		
Packing and shipping.....	2.72	3.01	.29	10.66
Miscellaneous.....	.31	.25	1.06	19.35
Total.....	16.34	18.59	2.25	13.77
General expense:				
Taxes and insurance.....	.49	.53	.04	8.16
Administrative.....	1.54	2.02	.48	31.17
Total.....	2.03	2.55	.52	25.62
Factory cost without depreciation.....	76.24	94.15	17.91	23.49
Depreciation.....	1.75	1.50	1.25	14.29
Total cost.....	77.99	95.65	17.66	22.64

¹ Decrease.

As shown by the table, the average cost of producing coated paper of the six mills rose from \$77.99 per ton in 1915 to \$95.65, an increase of \$17.66 per ton, or 22.64 per cent. The largest increase was in the machine-finish paper used. This alone amounted to \$11.04 per ton. Casein increased \$2.12 a ton in cost, and conversion labor \$1.88 a ton.

Percentage of cost.—The percentage of the total cost of producing coated paper attributable to particular items is shown by Table 24, following, for the years 1915 and 1916:

TABLE 24.—Percentage of total cost of producing coated paper of 6 mills attributable to particular items, 1915 and 1916.

	1915	1916	Increase, 1916 over 1915.
Tons produced.....	83,024	100,920	17,896
Stock:	<i>Per cent.</i>	<i>Per cent.</i>	<i>Per cent.</i>
Paper.....	54.55	55.02	1.47
Clay.....	4.18	3.40	1.78
Casein.....	9.69	10.12	.43
Satin white.....	2.46	1.81	1.65
Miscellaneous.....	3.32	4.98	1.66
Total.....	74.20	76.33	2.13
Conversion:			
Labor.....	12.50	12.16	1.31
Fuel.....	2.58	2.15	1.43
Repairs.....	1.83	1.59	1.24
Beltline and lubricants.....	.15	.13	1.02
Packing and shipping.....	3.49	3.15	1.34
Miscellaneous.....	.40	.26	1.14
Total.....	20.95	19.44	1.51
General expense:			
Taxes and insurance.....	.63	.55	1.08
Administrative.....	1.98	2.11	.13
Total.....	2.61	2.66	.05
Factory cost, without depreciation.....	97.76	98.43	.67
Depreciation.....	2.24	1.57	1.67
Total cost.....	100.00	100.00	0.00

1 Decrease.

The percentage of total cost attributable to paper was higher in 1916 than in 1915, while for clay, satin white, and all of the conversion items the percentages were lower.

Machine-finish paper represents more than half of the total cost of making coated paper. Other items bring the stock cost up to about 75 per cent of the total cost. Conversion items represent about 20 per cent of the total cost, of which labor alone represents more than 12 per cent. General expenses and depreciation represent about 5 per cent of the total costs.

Costs of individual coating mills.—The total costs of production for each of the six coating mills for 1915 and 1916 are shown in the tabulation below. Coating-mill costs were not obtained for the first quarter of 1917. The mills are arranged in order of costs for 1916.

Mill No.	1915	1916	Increase, 1916 over 1915.	Per cent of increase.
1.....	\$70.36	\$87.12	\$16.76	23.82
2.....	86.07	93.00	6.93	8.05
3.....	80.32	96.15	15.83	19.71
4.....	72.64	96.83	24.19	33.30
5.....	81.96	98.80	16.84	20.55
6.....	83.13	103.49	20.36	24.49
Average.....	77.39	95.65	18.26	23.59

Section 2. SODA-PULP COSTS, 1915 AND 1916.

Nine book-paper manufacturers whose paper costs were obtained operated 16 soda-pulp mills, the output of which was used largely in their paper mills. The costs of these 16 mills have been used to compute an average cost of producing soda pulp for the years 1915 and 1916.

Table 25 shows these average costs by items, together with the increase of 1916 over 1915 and percentage of increase.

TABLE 25.—Average cost of production per ton of soda pulp for 16 mills, 1915 and 1916.

	1915	1916	Increase, 1916 over 1915.	Per cent of increase.
Tons produced.....	266,807	319,623	52,816	19.80
Stock:				
Wood.....	\$13.24	\$13.46	\$0.22	1.66
Soda ash and soda.....	1.88	2.38	.40	20.20
Bleach.....	3.07	2.89	-.18	1 5.86
Lime.....	1.90	1.99	.09	4.74
Miscellaneous.....	.05	.03	-.03	66.00
Total.....	20.24	20.80	.56	2.77
Conversion:				
Labor.....	5.29	5.96	.67	12.67
Fuel.....	4.03	4.48	.45	11.17
Repairs.....	1.45	1.73	.28	19.31
Felts, wires, belting, and lubricants.....	.31	.33	.02	6.45
Miscellaneous.....	.76	.81	.05	6.58
Total.....	11.84	13.31	1.47	12.42
General expense:				
Taxes and insurance.....	.40	.41	.01	2.50
Administrative.....	1.08	1.20	.12	11.11
Total.....	1.48	1.61	.13	8.78
Factory cost, without depreciation.....	33.56	35.72	2.16	6.44
Depreciation.....	1.50	1.25	-.25	1 16.67
Total cost.....	35.06	36.97	1.91	5.45

1 Decrease.

The table shows that the average cost of producing soda pulp for the 16 mills rose from \$35.06 per ton in 1915 to \$36.97 in 1916, an increase of \$1.91 per ton, or about 5.5 per cent. The items of soda ash, labor, fuel, and repairs showed the largest actual increases. The only item that showed a decrease, except depreciation, was bleach, and as stated above (see p. 64) the depreciation charge was computed by the commission.

Soda pulp costs for first quarter of 1917.—Costs were obtained for eight soda-pulp mills for the first quarter of 1917. The average cost of these mills was \$34.58 per ton in 1915, \$35.82 per ton in 1916, and \$43.48 per ton in the first quarter of 1917. The 1917 cost represents an increase of \$7.66 per ton over 1916 and \$8.90 over 1915.

The following tabulation shows the costs by mills of the eight soda-pulp mills arranged in ascending order of costs for the first quarter of 1917:

Mill No.	1915	1916	First quarter, 1917.
1.....	\$30.00	\$30.78	\$39.06
2.....	36.02	36.57	40.24
3.....	32.68	36.06	41.49
4.....	35.96	38.01	44.07
5.....	39.34	38.70	45.81
6.....	36.53	37.93	46.64
7.....	34.72	35.69	47.16
8.....	33.94	37.36	49.63
Average.....	34.56	35.82	43.48

Percentage of cost.—The percentage of the total cost of producing soda pulp attributable to particular items is shown by Table 26, following, for the years 1915 and 1916:

TABLE 26.—Percentage of total cost of producing soda pulp of 16 mills attributable to particular items, 1915 and 1916.

	1915	1916	Increase, 1916 over 1915.
Tons produced.....	206,807	319,628	\$3,816
Stock:	<i>Per cent.</i>	<i>Per cent.</i>	<i>Per cent.</i>
Wood.....	37.76	36.41	¹ 1.35
Soda ash and soda.....	5.68	6.44	.79
Bleach.....	8.76	7.82	¹ .94
Lime.....	5.42	5.38	¹ .04
Miscellaneous.....	.14	.21	.07
Total.....	57.73	56.26	¹ 1.47
Conversion:			
Labor.....	15.09	16.12	1.03
Fuel.....	11.49	12.12	.63
Repairs.....	4.14	4.68	.54
Felts, wires, belting, and lubricants.....	.88	.89	.01
Miscellaneous.....	2.17	2.19	.02
Total.....	33.77	36.00	2.23
General expense:			
Taxes and insurance.....	1.14	1.11	¹ .03
Administrative.....	3.08	3.25	.17
Total.....	4.22	4.36	.14
Factory cost, without depreciation.....	95.72	96.62	.90
Depreciation.....	4.28	3.38	¹ .90
Total cost.....	100.00	100.00	0.00

¹ Decrease.

The percentage of total cost attributable to wood and other stock items except soda ash and miscellaneous was lower in 1916 than in 1915, while the percentages attributable to conversion items, especially labor, were all higher.

Wood represents about 37 per cent of the total cost of producing soda pulp and other stock items about 20 per cent additional. Conversion items represent from about 34 to 36 per cent of the total cost, the most important of which are labor and fuel. General expenses including depreciation represent about 8 per cent of the total cost.

Cost of producing soda pulp, by groups of mills.—Table 27, following, groups the 16 soda pulp mills according to cost and shows for each group the number of mills and the per cent of the total tonnage produced.

TABLE 27.—*Cost of production of soda pulp in 16 mills, arranged by groups according to cost per ton, 1915 and 1916.*

Group.	1915		1916	
	Number of mills.	Per cent of tonnage.	Number of mills.	Per cent of tonnage.
I. \$27 to \$30.....	2	14.86	0	0.00
II. \$30 to \$33.....	2	15.03	2	15.13
III. \$33 to \$36.....	4	24.57	1	9.31
IV. \$36 to \$39.....	4	22.96	9	57.95
V. \$39 to \$42.....	2	16.17	0	0.00
VI. \$42 and above.....	2	6.41	4	17.61
Total.....	16	100.00	16	100.00

In 1915, 12 of these soda pulp mills, producing more than 77 per cent of the tonnage, had a cost below \$39 per ton. In 1916, 12 mills, producing more than 82 per cent of the total tonnage, had a cost below \$39 per ton. In 1916, however, 4 mills had a cost above \$42 per ton, as compared with 2 mills in 1915.

The costs of 8 soda pulp mills for the first quarter of 1917 are shown by mills on page 73 above.

Advantage of paper mills producing soda pulp.—The decided advantage in the cost of making paper by mills which produce their own soda pulp is shown by the following tabulation:

	1915	1916	First quarter, 1917.
Average cost of production of 8 mills.....	\$34.58	\$35.82	\$43.48
Average price paid by 17 mills.....	42.87	45.83	72.76

¹ 12 mills.

The open-market price for soda pulp was above \$100 a ton for a considerable time during the last quarter of 1916 and the first month or two of 1917, and recent quotations have been above \$75.

Section 5.—SULPHITE COSTS, 1915 AND 1916.

Six of the twenty-one book-paper manufacturers whose paper costs were obtained operated nine sulphite mills, the output of which is used largely in making paper. The costs of these nine mills have been used to compute an average cost for the years 1915 and 1916. Table 28 shows the average costs by items, together with the increase of 1916 over 1915 and percentage of increase. The costs include the bleaching of such sulphite as was converted into bleached form before being used in making paper.

TABLE 28.—Average cost of production per ton of sulphite for 9 mills, 1915 and 1916.

	1915	1916	Increase, 1916 over 1915.	Per cent of increase.
Tons produced.....	179,419	203,003	23,584	13.14
Stock:				
Wood.....	\$18.87	\$18.80	¹ \$0.07	¹ 0.37
Sulphur and pyrites.....	2.71	2.66	1.15	15.54
Bleach.....	3.11	3.15	.04	1.29
Lime.....	.48	.48	.00	.00
Miscellaneous.....	.01	.28	.27	2,700.00
Total.....	25.18	25.27	.09	.36
Conversion:				
Labor.....	5.54	5.65	.11	1.99
Fuel.....	2.73	2.84	.11	4.03
Repairs.....	1.58	1.50	.01	.63
Felts, wires, belting, and lubricants.....	.36	.39	.03	8.33
Miscellaneous.....	.72	.75	.03	4.17
Total.....	10.93	11.22	.29	2.66
General expense:				
Taxes and insurance.....	.43	.51	.08	18.66
Administrative.....	1.68	1.87	.79	73.15
Total.....	1.51	2.38	.87	57.62
Factory cost, without depreciation.....	37.62	38.87	1.25	3.32
Depreciation.....	1.50	1.25	¹ 1.25	¹ 16.67
Total cost.....	39.12	40.12	1.00	2.56

¹ Decrease.

The total cost of production of the nine sulphite mills increased from \$39.12 in 1915 to \$40.12 in 1916, or about 2.6 per cent. The largest increase was in the administrative expense, which was due to the fact that one company operating three of the mills doubled its administrative salaries in 1916. There was a slight decrease in the cost of wood and sulphur per ton of sulphite. The depreciation charge per ton, which as stated above (see p. 64) was computed by the commission, was also less in 1916 than in 1915.

Sulphite costs for first quarter of 1917.—The costs of eight sulphite mills were obtained for the first quarter of 1917. The average cost of these mills was \$38.90 per ton in 1915, \$39.91 in 1916, and \$45.26 per ton in the first quarter of 1917. The 1917 cost represents an increase of \$5.35 per ton over 1916 and of \$6.36 per ton over 1915.

The costs per ton of the eight sulphite mills arranged in ascending order of cost for the first quarter of 1917 are as follows:

Mill No.	1915	1916	First quarter, 1917.
1.....	\$33.45	\$34.54	\$36.76
2.....	39.52	41.90	37.88
3.....	34.40	36.96	40.86
4.....	44.79	42.97	48.35
5.....	39.86	42.33	48.78
6.....	38.28	40.69	49.12
7.....	39.96	39.12	49.28
8.....	42.36	42.13	51.67
Average.....	38.90	39.91	45.26

Percentage of cost.—The percentage of the total cost of producing sulphite attributable to particular items is shown by Table 29, following, for the years 1915 and 1916:

TABLE 29.—Percentage of total cost of producing sulphite of 9 mills attributable to particular items, 1915 and 1916.

	1915	1916	Increase, 1916 over 1915.
Tons produced.....	179,419	203,003	23,584
Stock:	<i>Per cent.</i>	<i>Per cent.</i>	<i>Per cent.</i>
Wood.....	48.24	46.86	¹ 1.38
Sulphur and pyrites.....	6.93	6.38	1.55
Bleach.....	7.95	7.85	1.10
Lime.....	1.23	1.20	1.03
Miscellaneous.....	.02	.70	.68
Total.....	64.37	62.99	¹ 1.38
Conversion:			
Labor.....	14.16	14.08	1.08
Fuel.....	6.98	7.08	.10
Repairs.....	4.04	3.96	1.08
Felts, wires, belting, and lubricants.....	.92	.97	.05
Miscellaneous.....	1.84	1.87	.03
Total.....	27.94	27.96	.02
General expense:			
Taxes and insurance.....	1.10	1.27	.17
Administrative.....	2.76	4.66	1.90
Total.....	3.86	5.93	2.07
Factory cost without depreciation.....	90.17	96.88	.71
Depreciation.....	3.83	3.12	1.71
Total cost.....	100.00	100.00	0.00

¹ Decrease.

The percentages of the total cost attributable to stock items were less for 1916 than in 1915, while for conversion items there was little change.

The item of wood alone represents about 48 per cent of the total cost of producing sulphite. Other items bring the stock cost up to about 64 per cent of the total. Conversion items together represent about 28 per cent of the total cost. The most important of these items is labor, which represents about 14 per cent of the total cost. Taxes and insurance increased but slightly in 1916, while administrative expenses increased from 2.76 per cent in 1915 to 4.66 per cent in 1916.

Cost of producing sulphite, by groups of mills.—Table 30 groups the 9 sulphite mills according to costs and shows for each group the number of mills included and the percentage of the total tonnage represented.

TABLE 30.—*Cost of production of sulphite in 9 mills, arranged by groups according to cost per ton, 1915 and 1916.*

Group.	1915		1916	
	Number of mills.	Per cent of tonnage.	Number of mills.	Per cent of tonnage.
I. Under \$35.....	2	26.85	1	7.20
II. \$35 to \$40.....	4	40.65	2	31.39
III. \$40 to \$45.....	2	29.92	5	58.63
IV. \$45 and over.....	1	2.58	1	2.78
Total.....	9	100.00	9	100.00

In 1915 six sulphite mills, producing 67.5 per cent of the tonnage, had costs less than \$40 per ton, while in 1916 only three mills, producing 38.6 per cent of the tonnage, had costs below this figure. In 1915 two mills, producing nearly 30 per cent of the tonnage, were in Group III, with costs between \$40 and \$45 per ton, while in 1916 five mills producing 58.6 per cent of the tonnage were included in this group.

The costs of eight mills for the first quarter of 1917 are given above (see p. 75).

Advantage of paper mills producing sulphite.—The advantage in the cost of making paper to mills producing their own sulphite is shown by the following comparison:

	1915	1916	First quarter 1917.
Average cost of 8 mills.....	\$38.90	\$39.91	\$45.26
Average price paid by 20 mills.....	51.16	56.61	86.56

¹ 11 mills.

Unbleached sulphite sold above \$100 a ton in the open market during the last quarter of 1916 and the first month or two of 1917. The spot price has since declined to about \$75 per ton. Bleached sulphite sold above \$200 a ton in the open market during the same period, and has recently sold above \$100 a ton.

Section 6. BOOK-PAPER MILL PROFITS, 1915 AND 1916.

The accountants of the commission secured the gross and net sales, cost of sales, and profits per ton of the 21 book-paper manufacturers operating 39 paper mills, whose costs of making paper were obtained. Table 31 shows the average figures for the machine-finish and super-calendered paper sold by these companies for the years 1915 and 1916, together with the increase and percentages of increase of 1916 over 1915. The rate of profits on investment is shown in the following section. (See p. 80.)

TABLE 31.—Average sales, cost of sales, and profits per ton of paper of 39 principal book-paper mills, 1915 and 1916.

	1915	1916	Increase 1916 over 1915.	Per cent of increase.
Tons shipped.....	649,546	794,043	144,497	22.25
Gross sales.....	\$77.21	\$92.81	\$15.60	20.20
Less freight and cartage.....	4.20	4.27	.07	1.67
Less discounts and allowances.....	1.62	1.71	.09	5.56
	5.82	5.98	.16	2.75
Net sales.....	71.39	86.83	15.44	21.63
Less cost of sales (including general expense).....	62.28	69.56	7.28	11.69
Less selling expense.....	.81	.76	1.05	16.17
	63.09	70.32	7.23	11.46
Profits.....	8.30	16.51	8.21	98.92
Percentage of profits on net sales.....	11.63	19.01	7.38	63.46

¹ Decrease.

The tonnage shipped in 1916 was 22 per cent greater than in 1915 and the gross sales per ton 20 per cent greater. Net sales per ton for 1916 increased 21.6 per cent over 1915, while the cost of sales, including general expense, increased only 11.7 per cent and selling expense per ton declined 6.2 per cent. The average profits of the 39 mills increased from \$8.30 per ton in 1915 to \$16.51 in 1916, or 98.9 per cent, and the percentage of profit on net sales increased from 11.6 to 19, or 63.5 per cent. This profit was made on the total shipments of the 39 mills, some of which manufactured and sold other grades of paper than those classed as book paper, but the proportion of the total tonnage that was book paper was about the same in the two years, so that the increase in profits is representative of the book-paper business.

Book-paper profits for the first quarter of 1917.—The commission secured the sales, cost of sales, and profits of 10 companies operating 24 paper mills for the first quarter of 1917.

The following tabulation compares the low, high, and average figures of these 24 paper mills for the first quarter of 1917 with those for the years 1915 and 1916:

	1915			1916			First quarter, 1917.		
	Low.	High.	Average.	Low.	High.	Average.	Low.	High.	Average.
Net sales ¹	\$64.56	\$85.67	\$70.63	\$67.93	\$136.87	\$82.40	\$96.83	\$201.40	\$120.64
Cost of sales ¹	50.35	78.51	60.23	55.29	90.34	65.85	62.19	141.21	83.43
Profits.....	2.00	21.27	10.31	5.55	46.53	16.55	17.06	72.10	37.21
Per cent on net sales.....	3.1	22.2	14.6	8.2	34.0	20.1	19.6	35.8	30.8

¹ Does not include selling expenses, which amounted to about 76 cents per ton in 1916.

² Less.

The average profits of the 24 mills was \$10.31 per ton in 1915, \$16.55 per ton in 1916, and \$37.21 per ton for the first quarter of 1917. At this rate the increase in profits for 1917 would be about 261 per cent over 1915, as compared with an increase in cost of 38 per cent. (See

p. 66.) The percentage of profit on net sales averaged 30.8 in the first quarter of 1917, as compared with 14.6 in 1915 and 20.1 in 1916.

Profits per ton, by groups of mills.—Table 32 below groups the 39 paper mills according to the profits per ton realized and shows for each group the number of mills included, the tons sold, percentage of total sales, and average profit per ton.

TABLE 32.—Variations in the profits per ton of paper sold by 39 book-paper mills arranged by groups according to profits per ton, 1915 and 1916.

Group.	1915				1916			
	Number of mills.	Tons sold.	Per cent of total sales.	Average profit per ton.	Number of mills.	Tons sold.	Per cent of total sales.	Average profit per ton.
I. \$35 and over.....					2	10,300	1.30	\$43.86
II. \$30 and less than \$35.....					5	80,351	10.12	32.96
III. \$25 and less than \$30.....					4	91,075	11.47	26.09
IV. \$20 and less than \$25.....	1	19,628	3.02	\$21.28	4	68,925	8.43	22.19
V. \$15 and less than \$20.....	5	77,572	11.94	16.72	7	70,039	8.82	17.06
VI. \$10 and less than \$15.....	7	121,900	18.77	11.89	13	335,272	42.22	12.45
VII. \$5 and less than \$10.....	12	240,502	37.03	7.62	3	104,157	13.12	7.42
VIII. Less than \$5 ¹	14	189,944	29.24	2.07	1	35,924	4.52	.....
Total.....	39	649,546	100.00	8.30	39	794,043	100.00	16.51

¹ Includes one mill which transferred its output at cost to coating mill.

In 1915, 13 mills representing 33.7 per cent of the tonnage made profits greater than \$10 per ton, while 12 mills representing 37 per cent of the tonnage made between \$5 and \$10 a ton, and 14 mills representing 29 per cent made less than \$5 per ton. In 1916, 15 mills representing 31.3 per cent of the tonnage made profits in excess of \$20 per ton and 20 other mills representing 51 per cent of the tonnage made profits in excess of \$10 per ton, while only 4 of the 39 mills representing 17.6 per cent of the tonnage made profits less than \$10 per ton.

Of the 24 mills whose profits were obtained for the first quarter of 1917, only 2 showed profits less than \$20 per ton, 6 showed profits between \$20 and \$30 per ton, 6 between \$30 and \$40, 5 between \$40 and \$50, 3 between \$50 and \$60 and 2 above \$60, the highest being \$72.10 per ton.

Coating mill profits.—The sales, cost of sales, and profits were obtained for the 6 coating mills whose costs are given above (see p. 70) for the years 1915 and 1916. These figures are given in Table 33, the mills being arranged in order of profits for 1916.

TABLE 33.—Net sales, cost of sales, and profits per ton of 6 coating mills, 1915 and 1916.

Mill No.	Net sales.		Cost of sales.		Profits.		Increase in profits, 1916 over 1915.
	1915	1916	1915	1916	1915	1916	
1.....	\$94.99	\$115.78	\$70.79	\$87.31	\$24.20	\$28.47	\$4.27
2.....	89.42	124.25	72.49	96.18	16.93	28.07	11.14
3.....	104.36	128.74	82.28	101.83	22.08	26.91	4.83
4.....	93.13	116.74	79.80	95.30	13.33	21.44	8.11
5.....	104.57	118.35	81.62	99.12	22.95	19.23	¹ 3.72
6.....	88.75	102.44	85.96	92.41	2.79	10.08	7.24
Average.....	94.12	118.43	77.23	96.17	16.89	23.26	6.37

¹ Decrease.

The table shows that the average profits for the six coating mills rose from \$16.89 per ton in 1915 to \$23.26 per ton in 1916, an increase of \$6.37 per ton, or about 38 per cent. This increase was much less than for machine finish and supercalendered book paper, which, as shown in Table 32 above, was nearly 100 per cent. The average profit of \$16.89 per ton in 1915 represented 17.9 per cent of net sales and the average profits of \$23.26 per ton in 1916 represented nearly 20 per cent of net sales.

One of the six coating mills showed a decrease in profits of \$3.72 per ton in 1916 over 1915, but its profits in the former year were \$22.95 per ton, or about 22 per cent on net sales.

Section 7. PROFITS ON INVESTMENT.

The commission secured the book investment of the 21 book-paper manufacturers whose costs were obtained for the years 1915 and 1916. It was found that the book investment of these companies was fairly representative of the cost of investment (the only true basis on which to figure profits), since the industry is generally free from the inflations in capitalization which characterized the news-print industry. The net book investment of these companies has, therefore, been used in computing the rate of profits on investment. The profits used in the computation are the revised net earnings, as computed by the commission, before deducting bond interest.

The commission found it impossible to make a separation of the investment of the 21 companies by grades of paper or even by mills, so that their total revised net earnings are compared with their total book investment. In most cases, however, the bulk of the output of the companies is book paper, so that the rate of profit on investment is fairly representative of the results of book-paper manufacture.

Table 34 shows the rate of revised net earnings on the net book investment of each of the 21 book-paper companies for the years 1915 and 1916, together with the average for each year. The companies are arranged in descending order for 1916.

TABLE 34.—*Rates of profit on net book investment of 21 companies, 1915 and 1916.*

Company No.	1915	1916	Increase, 1916 over 1915.	Company No.	1915	1916	Increase, 1916 over 1915.
	<i>Per cent.</i>	<i>Per cent.</i>	<i>Per cent.</i>		<i>Per cent.</i>	<i>Per cent.</i>	<i>Per cent.</i>
1.....	12.86	60.64	47.78	13.....	6.50	19.99	13.49
2.....	21.16	38.30	17.14	14.....	8.44	19.52	11.08
3.....	1.35	37.48	36.13	15.....	1.95	17.97	16.02
4.....	1.78	29.67	27.89	16.....	10.15	17.51	7.36
5.....	10.03	28.42	18.39	17.....	7.17	17.09	9.92
6.....	8.66	37.67	19.01	18.....	9.32	13.88	4.56
7.....	5.45	26.87	21.42	19.....	.33	10.90	10.57
8.....	20.41	25.21	4.80	20.....	4.43	10.00	5.57
9.....	12.50	25.14	12.64	21.....	6.06	8.23	2.17
10.....	5.91	24.28	18.37				
11.....	11.02	24.24	13.22	Average.....	8.73	21.52	12.79
12.....	1.00	23.78	22.78				

The average rate of profit on investment for the 21 companies increased from 8.73 in 1915 to 21.52 in 1916, an increase of 12.79, or about 147 per cent. Companies such as No. 1, which sold most of

their output in the open market, made very large profits on the investment in 1916, as compared with 1915, while companies such as Nos. 8, 18, and 21, which sold most of their output on contracts made before the prices had risen, made only moderate increases in profits in 1916 as compared with 1915.

Detailed information regarding the rate of profits on investment for the first quarter of 1917 was not obtained, but judging from the increase in profits per ton the average rate for the 21 companies was in excess of 40 per cent.

Section 8. CONCLUSIONS.

The figures in the foregoing sections show that while the costs of book-paper mills were rising in 1916 and the first quarter of 1917, prices and average receipts at mill were rising more rapidly, with the result that the average profits per ton for 39 mills making machine-finish and supercalendered paper were nearly 100 per cent greater in 1916 than in 1915, and the average profits of 24 mills for the first quarter of 1917 were nearly 261 per cent greater than for 1915. This finding of fact is clearly shown by the following summary tabulation, which shows for various items the percentage of increase of 1916 and the first quarter of 1917 over 1915.

Item.	Per cent of increase, 1916 over 1915.	Per cent of increase, first quarter of 1917 over 1915.
<i>Costs.</i>		
Average cost per ton of 39 book-paper mills.....	12.3	
Average cost per ton of 24 book-paper mills.....		38.0
Average cost per ton of 6 coating mills.....	22.6	
<i>Sales.</i>		
Average net sales per ton of 39 book-paper mills.....	21.6	
Average net sales per ton of 24 book-paper mills.....		70.5
Average net sales per ton of 6 coating mills.....	25.8	
<i>Profits per ton.</i>		
Average profits per ton of 39 book-paper mills.....	98.9	
Average profits per ton of 24 book-paper mills.....		260.8
Average profits per ton of 6 coating mills.....	37.7	
<i>Profits on net sales.</i>		
Average rate for 39 book-paper mills.....	63.5	
Average rate for 24 book-paper mills.....		111.2
Average rate for 6 coating mills.....	19.6	
<i>Profits on investment.</i>		
Average rate for 21 companies.....	147.0	

The present situation in the book-paper industry is best illustrated by a comparison of results for the first quarter of 1917 with the year 1915. The tabulation shows that costs advanced 38 per cent on the average, while net sales advanced 70.5 per cent and profits 260.8 per cent. The rate of profit on net sales of 39 mills increased 63.5

per cent in 1916 over 1915 and the rate of profit on investment increased 147 per cent.

It is evident from these facts that the book-paper manufacturers have advanced their prices far beyond what the increased costs will justify. In doing this they have ignored the public interest and placed unnecessary burdens upon publishers and other purchasers which, in many cases, will be difficult to bear. Most of the book-paper manufacturers were making good profits in 1915, their assertions to the contrary notwithstanding. They were not contented with maintaining these profits, however, but sought to exact the maximum profits obtainable as a result of panic conditions among buyers.

CHAPTER IV.

ACTIVITIES OF MANUFACTURERS.

Section 1. THE BUREAU OF STATISTICS.

Of the 40 important book-paper manufacturing concerns in the United States, with aggregate daily capacity of about 3,000 tons, 23 establishments, with combined daily output of approximately 2,200 tons, are members of an association called the Bureau of Statistics, Book Paper Manufacturers. This association is unincorporated and has neither constitution nor by-laws. No minutes and no other records of meetings of the members are kept. The only officer is C. F. Moore, secretary, whose office is in the Vanderbilt Hotel, New York City. Members of the western group, situated in the States of Ohio, Michigan, Wisconsin, and Washington, hold meetings from time to time in the city of Chicago. The eastern group members have offices in New York City or in the States of Massachusetts, New Jersey, or Pennsylvania, and they meet in New York City at the Vanderbilt Hotel. General meetings of the members of both eastern and western groups are held at this hotel. Four leading members of the eastern group having main offices in New York City are all in the same building, No. 200 Fifth Avenue. The meetings occur at irregular intervals, more frequently during some periods than others. Meetings are called by the secretary, usually upon request of members.

Alleged purpose of the bureau.—The secretary asserts that the purpose of the bureau is purely the gathering and disseminating of statistical information. The facts disclosed indicate that the activities transcend such declared purpose.

Section 2. ABNORMAL INCREASE IN PRICES.

The mill prices of book-print paper increased in 1916 until in the latter part of the year they were, in many instances, between two and three times as much as the normal prices of the year 1915. The facts gathered by the commission's accountants from the books of the mills show that there was little, if any, cost justification for such increase. (See Chap. III.)

Justification for undue prices.—The correspondence proves that the manufacturers knew that their prices and profits were exorbitant, but the members of the association seek to justify such exactions because prices, they claim, in the past have been low, and in the future may again be so, etc. As a matter of fact, most of the companies made good profits under substantially normal conditions in 1915.

On February 25, 1916, a member wrote to another that his company felt they must make a profit to partly "compensate for some of the losses when the prices begin to decline," and "would appreciate a line from you stating what you are doing in the way of prices."

In a letter of March 7, 1916, the same member, writing to the same concern, stated that opportunity should not be lost for making money that had not been made in the past. He suggested that manufacturers' customers be made to pay the market price and that they in turn "get it back from their customers."

At a general meeting on June 14, 1916, of the members of the Bureau of Statistics, Book Paper Manufacturers, held at the office of the secretary of the Bureau of Statistics, in the Vanderbilt Hotel, New York City, the representative of a prominent member concern said, referring to his own company, that the public had ground them down for years and that now they were going to make the public pay.

Methods used to effect undue price enhancement.—By circular letter the secretary distributes to members some small amount of statistical information based upon reports made by members; but such circular letters, and letters passing between the secretary and various members individually, as well as correspondence between members, and the activities of certain members, show that this association has devoted a large part of its energy to inducing undue enhancement of prices. Besides corresponding with the various members the secretary attends general meetings and meetings of each group and indulges in "swinging around the circle," as it was called by one member, so as to have business conversations personally with the members. The use of the telegraph and telephone have also added materially to the effectiveness of the secretary's work and the work of this association in the undue enhancement of prices of book paper.

The secretary on August 11, 1914, sent to the members of the association a circular letter which contained accounts of the proceedings of the meetings of the western group of members held August 7, and of the meeting of the eastern group held on August 10. In this letter the secretary advised the members that "it seemed to be the uniform disposition to advance prices." Following closely upon this date one of the members wrote another: "Before this reaches you, you will have been undoubtedly advised that * * * company has advanced their prices before there was any other advance made in the market, and their prices of * * * are \$5 per ton higher than what the market is supposed to be." On September 26, 1914, the secretary wrote a member that the western manufacturers were inclined to advance prices, and added, "I expect to go to New England this coming week and hope to see you."

December 3, 1915, one member wrote the secretary with respect to the desirability of holding a meeting "in the near future," and stated that he felt confident that—

if we got together within the next week or ten days and established a minimum price, it would have the effect of stimulating the placing of orders, and it wouldn't be long before the volume of business would be so large that we could make an advance justified by the increased and increasing cost of manufacture.

Early in the following month, namely, on January 7, 1916, a "general" meeting was held in New York City, and about two weeks thereafter (i. e., January 22, 1916) one book-paper manufacturer wrote

to another that he appreciated "that there is a tendency everywhere to try to force better prices," and that he

attended a recent meeting of coated-paper manufacturers in New York, at which increased costs of manufacturing were discussed;

and that at this meeting the secretary of the Bureau of Statistics remarked that—

it seemed quite apparent that, while there was every reason for coated manufacturers to get together and advance prices, it looked as though very little could be done along that line at this time.

The effort to "force better prices" and to have the prices uniform as to all manufacturers during this period is clearly shown in the correspondence. Manufacturers were frequently notifying the trade and other manufacturers of price advances, and almost invariably giving as the reason the increasing cost of raw materials. That there was no cost justification for the prices charged abundant evidence exists. A member of the bureau (the only one who seems to have held off from joining the movement to unduly enhance prices) in answering a letter of February 25, 1916, from another member stating that the latter had been compelled to advance prices again, as the advance of February 1 did not check the rush of orders, said that he was disappointed to see his correspondent "make extraordinary advances which could have no present cost justification," and among other letters he wrote one to another member who had notified him of an advance, and in the letter he said:

Many of the mills are merely taking advantage of the present abnormal conditions. There certainly could be nothing in your cost of doing business which could warrant these frequent advances, and they are obviously for one of two reasons, or both—either to stop orders or "cash in" so far as possible on the present market.

How one who thus spoke the truth was regarded by others is indicated in a letter of May 3, 1916, in which one member wrote to another that the attitude of the writer of the above-quoted passage "is stated to be a depressing influence on the price of high-grade paper."

The capacity of the concern which held out against unduly advancing its prices was limited. This fact, together with the correspondence relating to its refusal to join in the concerted advance, only serves more clearly to demonstrate the thorough-going activity as well as responsibility of other members and of the secretary concerning higher prices, for they repeatedly urged the low-price concern to change its policy. On April 14, 1916, one of the most active members wrote to one of his correspondents that he did not approve of the low-price concern's policy, but added:

We hear that their agents are practically sold out and nothing to deliver, so what is the difference what their price is?

It seems that it was the principle of concerted action, the idea of having all members act in concert, which, rather than the actual fear of loss of business by the high-price concerns to the low-price concern during the pressure of big demand, was the impelling reason for their anxiety and activity in the matter. On May 13, 1916, the secretary wrote a member, referring to the obdurate low-price member, that there was no reason why one manufacturer should fix prices if others had a different view of paper value, etc.

Indicative of common knowledge of and responsibility for proposed advances, is a letter written on June 9, 1916, by a prominent member to a wholesaler, a little more than a week before one of the general price advances in book paper:

I want you to get under cover if you think you want any of our papers at this price, etc., and on the margin of the letter he wrote:

Fireworks about to start. Get busy either with me or elsewhere. Suit yourselves, but consider service.

This brought orders from the wholesaler, and on June 19, 1916, the date on which the manufacturer advanced his prices, the latter wrote the same wholesaler:

It is indeed a pleasure to see you get "under cover." Many have insisted that prices were going to drop and have held off accordingly, and will have to take their medicine. Prices will go higher.

EXHIBITS.

EXHIBIT 1.

STATEMENTS BY PAPER MANUFACTURERS REGARDING THE CAUSES OF THE INCREASE IN PRICE IN 1916.

The following are replies to question 8 of a schedule sent to certain paper manufacturers in November, 1916, which reads as follows:

Submit statement of your views regarding the causes of the present increase in price.

Amoskeag Paper Mills Co: Present price depends on supply and demand. Not much foreign pulp being imported and higher costs for labor and all materials.

Bardeen Paper Co.: Because of increase in cost of raw materials, supplies, and labor.

Bergstrom Paper Co.: The unremunerative prices prevailing in the past. The increased prices of raw material, fuel, labor, and general manufacturing costs. The increased domestic demand principally, with some for export.

Bryant Paper Co.: Wage increase, over 50 per cent; sulphite pulp, from 200 to 300 per cent; soda pulp, over 100 per cent; rags, over 200 per cent; old papers, from 150 to 200 per cent; chemicals, 100 to 300 per cent; wires, over 100 per cent; felts, over 50 per cent; coal, about 50 per cent; clay, about 50 per cent. Raise in freight rates both in and out. Apparently even these advances will be greater instead of less.

Champion-International Co.: Increased cost of manufacturing due to high price of labor and materials and the extreme uncertainty as to future costs, coupled with unusual demand for product.

Combined Locks Paper Co.: Advance in labor and raw materials has increased costs, while price of finished stock is result of change in costs and of supply and demand.

Crocker, Burbank & Co. (Inc.): As we purchase all our raw materials, it is the rising cost of raw materials which has increased the cost of our paper here, together with quite an increase in the cost of labor.

We presume that in addition to the actual increase in cost of the raw materials themselves there is a sentimental rise in price due to the fact that there is only about 75 per cent of raw materials procurable with which to run the print paper mills of the United States, and unless some other source of supply is discovered, and should the war continue, there is likely to be a further marked advance in prices.

Formerly we imported large amounts of old papers and rags from England and the Continent. These have been entirely shut off.

The supply of sulphite, sulphate, and soda pulps from Norway and Sweden has been greatly curtailed. The manufacturers in those countries have also advanced their prices, so that where we formerly

paid 2½ cents per pound for bleached sulphite pulp from Norway, we have had to agree to pay 7½ cents per pound for a supply for the first three months in 1917.

Curtis & Bro. (Inc.): Increased cost of labor and all materials entering into manufacture of paper.

Diana Paper Co.: Increased cost of labor, supplies, felts, wire, coal, pulp wood, sulphite, and every item entering into the cost of making paper.

Dill & Collins Co.: Lack of encouragement to develop more mills due to hostile legislation previous to the war. Since the war, due to unprecedented demand, which makes a short supply of paper.

Emerson Paper Co.: High prices for raw materials and a greater demand for paper than the existing supply.

Everett Pulp & Paper Co.: Owing to the generally prevailing more prosperous business conditions in this country, more paper is being consumed than ordinarily, and owing to the nonoperation of paper mills in Europe due to the war, the foreign demand for American paper is abnormally great. In other words, the law of supply and demand is fixing and controlling the prices of paper.

Fitchburg Paper Co.: Avarice of soda, poplar, and pulp manufacturers. Price advanced \$2.42 per hundred by agreement. Cost increased \$0.30 per hundred.

French Paper Co.: Supply and demand, coupled with rapid advance in everything we buy. Eight-hour shifts have increased labor costs 50 per cent, and chemical pulps have advanced 200 to 300 per cent.

Frank Gilbert Paper Co.: In reply to paragraph 8 as to the causes of the present increase in price of paper, would say that I believe that the consumers of paper will never realize how honest and considerate the manufacturers of paper have been. I do not know of a single manufacturer of paper whose effort has not been to keep the price of paper down rather than to take advantage of the situation and advance prices unduly. As to specific causes, among many others, would mention the following:

First. High cost of labor.

Second. Shortage of labor, causing curtailed production creating actual scarcity.

Third. Lack of rain in almost every paper-making section, which has made a shortage of ground wood pulp and caused high prices, which the paper manufacturer must take into account when quoting prices.

Fourth. The adoption of the three-tour system in almost all mills, which has added a tremendous labor charge to paper manufacturing costs.

Fifth. Increase in the cost of chemical pulp, due to the high cost of labor and chemicals and low water.

Sixth. High cost of wood, due to the increased cost of labor in putting men into the woods and of boarding them.

Seventh. An actual scarcity of many chemicals and high prices for same, due to the lack of importations.

Eighth. Practically no importations of foreign pulp, which has caused great bidding for the small supply available and consequent high prices for paper.

Ninth. The unprecedented demand for paper which has caused many users to offer high prices for special services in the way of deliveries.

Tenth. Lack of standards in sizes. This feature deserves serious consideration with regard to book paper and particularly as concerns news paper required by small publishers throughout the country. The small publishers in very many cases use flat presses which are very old and for these presses they require special sizes of paper. If the small publisher could order straight carload lots in his particular size and weight, it would not be so difficult for mills to supply them, but they usually buy a ton at a time at infrequent intervals and the ordinary fast-running paper mill can not stop its machinery, change the size of the sheet, cut up the paper, wrap, tie, and ship it and charge the customer price high enough to give him a new dollar for an old one.

P. H. Glatfeller Co.: Increased cost of labor, coal, raw materials, etc.

W. C. Hamilton & Sons: Enormous advance in wages, coal, chemicals, and particularly the scarcity and great advance in price of foreign and domestic sulphites; and the demand much greater than the possible production.

The Hartford Paper Co.: All that can be said, that I know of, in a free country like these United States every person has a right to put their own price to their own labor, whether in exchange of material or to the direct production, and the buyer of such has the same unqualified right to take or leave it as he may choose, granting that the parties are of equal standing.

Holden Paper Co.: Increased cost of raw materials and increase of cost in operating.

Inland Empire Paper Co.: Largely due to high cost of raw materials.

Jessup & Moore Paper Co.: Largely increased demand for paper. Great scarcity of and increased cost of pulp and all materials for paper making. Increased cost and scarcity of labor.

Kalamazoo Paper Co.: Increase in all material and labor costs and demand much in excess of supply.

Kimberly-Clark Co.: The very material increase in the cost of manufacture and the fact the demand is very much in excess of the supply.

King Paper Co.: Increased labor and material costs.

Lakeside Paper Co.: Supply less than demand.

The Mead Pulp & Paper Co.: High price of everything entering into the manufacture of paper. Change from two tours to three tours of eight hours each. Production not equal to the demand.

Menasha Paper Co.: Extraordinary foreign and domestic demand.

The Miami Paper Co.: Demand and supply.

Monadnock Paper Mills: There are several reasons causing the present increase in price of paper, in our opinion, which are as follows:

First. The initial reason was caused entirely by the news-print publishers when they retained John Norris to depreciate the price of paper a number of years ago. The paper mills at that time were not making a profit, and this was the first step toward discouraging capital entering the manufacture of paper. Again, the news-print publishers, when they induced the Republican administration under President Taft to allow free print to come from Canada, took the

longest step toward damaging the manufacturer of paper, and absolutely preventing capital entering into and discouraging the manufacturers from expanding or increasing their output.

Second. Previous to the war enormous quantities of sulphite pulp were imported to this country from Scandinavia and Germany, and were sold at a price as low and in some cases lower than the American manufacturer could make sulphite for. This importation of pulp has practically stopped, causing an unlimited demand in this country for sulphite. Soda fiber for a number of years the demand has never been equal to the supply, and it has sold at a low figure. To-day the demand is far ahead of the supply, naturally causing an increase in price. Practically everything entering into the cost of paper has advanced enormously. Fourdrinier brass wires are up over 100 per cent; felting is up; labor is scarce and higher; the coal situation at the present time is critical.

For many years the paper mills have never received an adequate return on their investment, so that of late there have been very few paper machines added and no increased production for some time. This with business conditions in this country and the enormous foreign demand for paper has materially increased the selling price.

Monarch Paper Co.: Increased cost of all materials and labor and unusual demand.

R. T. Moorhouse Paper Co.: Increased wages, reduction of working hours, increased cost of coal, pulp, waste paper, chemicals, dye-stuffs, and all other machinery, equipment, repairs, woolen felts, cotton felts, wire cloth, and all other clothing and paper mill supplies. Increased expenses, including liability and all forms of insurance. Increased shipping costs, etc.

New York & Pennsylvania Co.: The demand for paper and raw materials used in its manufacture has been greater than the supply.

Martin & Wm. H. Nixon Paper Co.: High cost of raw material and wages.

Northern Paper Mills: The lessened importation of pulp and paper from foreign countries, increased foreign and domestic demand for paper, increased cost of labor, felts, wires, and all articles used in the manufacture of paper.

Oxford Paper Co.: Demand and supply.

Patten Paper Co. (Ltd.): The reasons for the increase in our prices are that all raw stock, namely, ground wood, unbleached sulphite, and bleached soda pulps, rags, chemicals (colors, English china clay, alum, size and bleaching powder), have doubled and even tripled in price over their cost in normal times.

The cost of help has gone up, and together with the introduction of the three-tour system makes an increase of about one-third over normal times. In fact, everything that is used in connection with the mill has increased more or less, such as overhead expense, insurance, and taxes.

Finally, on account of the removal of tariff on print paper several years ago, in plain opposition to findings of the Tariff Commission, business has been so depressed and profits so low that new mills were not built to keep pace with normal demand—with the result that to-day demand far exceeds the supply.

Peninsular Paper Co.: This fact is entirely regulated by the law of supply and demand and the high cost of raw materials.

Reading Paper Mills: Due solely to increased cost of raw materials and labor.

Rex Paper Co.: Supply and demand.

Ticonderoga Pulp & Paper Co.: Scarcity of raw materials, due to the war, scarcity of labor, and the unprecedented demand for paper.

Tileston & Hollingsworth Co.: The European war.

The Wanaque River Paper Co.: The cause of the recent increase in price of paper may be assigned, in our opinion, to three general heads:

(1) Rise in price of all raw material and of labor, so that the dollar is depreciated for the paper manufacturer as well as for all others.

(2) Increase in demand.

(3) Timidity of capital about new investment in a manufacturing industry discriminated against by recent tariff laws.

The European war has shut off a large part of our supply of raw materials and chemicals and has, through the attendant business stimulus, created an extra demand for paper as well as for other commodities. Labor has demanded shorter hours and at the same time more pay to meet the increased cost of living. It is necessary to collect here larger quantities of rags and old papers to make up for what formerly came from Europe; and to accomplish this a much higher price must be paid for such material in order to induce the people to save it. Labor for collecting is particularly scarce.

The paper mills have always heretofore built too fast for their own good and paper has been low priced in this country compared with other products. The publishers, not satisfied with conditions so favorable to them, have used their power of publicity and their influence over public men to secure legislation so unfair to paper manufacturers that the overbuilding and the overproduction has at last been checked and the price of paper is therefore higher than it would have been if the adverse legislation had not been enacted.

At present it would be almost impossible to secure the necessary machinery to enlarge paper-making plants, to say nothing of present prohibitive prices for such machinery as could be had; and with book paper on the free list and most of the paper manufacturer's supplies higher protected, it would be injudicious, to say the least, to increase investments in paper-making plants without some assurance that the manufacturer of paper would receive the same treatment from the Government as other American manufacturers not especially selling to publishers.

S. D. Warren & Co.: In considering this, we will take up the reasons in what we consider the order of importance.

1. *Demand.*—For many years the book-paper business has been unsatisfactory, with a capacity far in excess of demand and prices low, and consequently unprofitable. In 1915, for the first time in our history, we were obliged to curtail operations and run the mill five days a week. The attached sheet shows the orders received during 1915 and up into 1916, as well as the stock of paper on hand, and the average product per day in tons. From this you will note that the increased demand began in November, 1915, as shown by the increased orders, and the decrease in stock. The demand increased until the orders received in March, being more than two months' capacity, compelled us to refuse to receive orders except to the capacity of our mill, and to then begin efforts to so apportion the capacity

amongst our customers as to treat everyone fairly and distribute our product as equally as possible throughout our trade. The increasing demand not only took our stock, as the figures show, but to meet the situation we made every effort to increase our production, as is again shown by the figures. This demand seems to have been general and due to the requirements of the business world as a whole. Our figures do not include any appreciable foreign demand, and for many months the requirements have been for paper without much regard to the price.

2. *Cost of raw materials.*—The principal raw material is sulphite pulp. This we can not manufacture, but buy, largely in Canada, to a small extent in this country, and in the past we have bought considerable foreign sulphite. The war ceased all shipments from Germany, and the shipments from Norway and Sweden were soon curtailed. The scarcity of coal, the fact that sulphur was a contraband of war, the partial mobilization of Sweden, with the consequent dearth of labor and the high price of horses, supplies, etc., for wood operations naturally resulted in gradually increased costs and diminished output with consequent advance in price. This being followed by the hostility of Great Britain to the shipment of materials by Sweden, with the advance in freights and war risks has resulted in a great advance of price. The Canadian mills are suffering from scarcity of fuel and shortage of men, both in the mills and in the woods. Many mills in this country which formerly sold their surplus have now not only required it all, but been in the market, and the widely stimulated demand has been entirely beyond the capacity of any mills in sight. Unbleached sulphite has advanced from 1.80 to 2 cents per pound to from 4.75 to 5½ cents. Bleached sulphite has advanced from 2.75 to 3 cents per pound to 6 to 7½ cents, and spot lots of both grades of pulp have sold at much higher figures.

Coal has advanced very seriously. We are now paying \$9.75 per ton where we used to pay \$2.75 to \$3.25.

Colors for which we used to pay 30 and 40 cents per pound have advanced seriously. Some of these colors have been costing as high as \$16 per pound.

Wages have in our mills been advanced three times since the 1st of January, aggregating between 25 and 28 per cent.

Bleaching powder, which formerly cost 1½ cents per pound delivered, is now selling at around 5½ cents per pound and has been as high as 16 cents per pound.

Soda ash has advanced from one-half cent per pound to 3 cents per pound, and many other chemicals in proportion.

Casein, of which we use large amounts, has advanced from 6½ cents to 22 to 25 cents.

While it is true that we, as well as other manufacturers, were protected to a certain extent by contracts for raw materials previously entered into, it has been difficult to obtain deliveries, as they have had their handicaps as well and have found it impossible in many cases to obtain their raw materials.

3. *Freight embargoes.*—Here in New England freight embargoes have existed almost the whole year through, materially increasing the cost of delivery of our finished product and increasing the cost of incoming material.

4. We believe that the whole situation is affected by the abnormal increase in the supply of gold, and hence in the depreciation of the currency and the fall in the purchasing value of a dollar, which must necessarily result in apparent increase in price.

Watab Pulp & Paper Co.: The same reasons as have caused the legitimate advance of other products.

Watervliet Paper Co.: Scarcity of raw materials, increased cost of labor, and law of supply and demand.

West Virginia Pulp & Paper Co.: Demand exceeds supply.

Geo. W. Wheelwright Paper Co.: Increase in the cost of every fiber fiber, every chemical, materials, supplies, replacements, labor, fuel, taxes.

EXHIBIT 2.

THE PRINT PAPER SITUATION.

ADDRESS OF CHARLES F. MOORE, SECRETARY BUREAU OF STATISTICS,
BOOK-PAPER MANUFACTURERS, DELIVERED BEFORE THE NEW
YORK BUSINESS PUBLISHERS ASSOCIATION AT THE ADVERTISING
CLUB, OCTOBER 2, 1916.

I am very glad, indeed, to have this opportunity to talk with representative publishers in regard to the book-paper situation; and let it be understood that when I use the term "book paper" I mean all printing paper other than news print.

It is a time when conditions are far from normal and are unsatisfactory to both manufacturer and consumer. I am perfectly sure we would all be better pleased if we were not surrounded and confronted with so much uncertainty. The producer would prefer to know upon what he might depend in the future and to conduct his business upon more stable lines, just as the publisher would prefer it, but as that can not be done we are compelled to accept the situation and make the best of it, meanwhile dealing with each other in the spirit of mutual frankness and fairness.

I fully appreciate the fact that this is a trying time with the publisher, and I very much fear that he will get little comfort out of the truth which I propose here and now to speak. There could be no purpose in my holding out a false hope or in making any intentional misstatement of the facts.

The daily press has had a great deal to say about the selfishness and greed of the paper manufacturer. He has been accused of seeking in every way to take advantage of the present crisis without showing any consideration whatever for the consumer. Not only is he charged with selfishness, but the accusation has repeatedly been made that the manufacturers have combined and conspired in violation of the law for the purpose of exacting the uttermost farthing from the helpless consumer.

These promiscuous and unfounded accusations have not come to any great extent from the consumers of printing papers other than news print. The charge has been made by the daily press, which in the main uses news print paper; but it has not discriminated in making the accusations. All paper manufacturers have been classed together as lawbreakers.

You can understand, therefore, that in the face of these repeated attempts to incriminate paper manufacturers I am very glad to have the opportunity to speak frankly with that class of publishers who have shown a disposition to be fair and an inclination to hear the truth.

I need not tell you that there has been a very great advance in the price of book papers. You are aware of that fact, just as you

know also the difficulty of procuring the prompt delivery of paper at any price. Time and again I have been asked, and am now requested to explain, if I can, why this apparently unreasonable increase in the cost of paper, why the great difficulty in procuring it at any price, and whether the increase in cost of production justifies the prevailing price at which paper is selling.

That an unlimited quantity of paper can not be had when desired is very readily understood by those who have inquired into the situation. The fact is there is a world-wide paper famine, and there is nothing more unusual about the difficulty in procuring paper when the supply is short of demand than there is about procuring wheat or corn when the crop is short. You can not get what does not exist.

But you want to know why this shortage of supply. The answer is that in the European countries production has been reduced to a minimum by the great war, while in the United States consumption has enormously increased.

It will not satisfy you to have me make these broad and general statements without giving some definite figures in their support, which I am glad to do as far as possible.

The Bureau of Statistics of Book Paper Manufacturers represents about 80 per cent of the industry; that is to say, mills making about 80 per cent of the total tonnage of book paper report to this bureau. My figures, therefore, represent actual conditions only with reference to the 80 per cent; but in order to give you a more comprehensive view of the whole situation, I have estimated the operations of the mills which are not included in the bureau, feeling it safe to figure that the operating conditions of those mills are practically the same as in the others. The variation in any event can not be considerable, so that the figures I give you of the entire industry, while in part estimated, are approximately correct.

During the fiscal year ending June 30, 1915, the book-paper mills in the United States produced in round numbers 697,000 short tons; and let it be understood that hereafter when I speak of tons I always mean the short ton of 2,000 pounds. The same mills during the fiscal year ending June 30, 1916, produced 776,000 tons, an increase of 79,000 tons. Not only was this extra production of 79,000 tons available for the market, but the stocks of paper on hand at the mills within that year were reduced 25,000 tons, which means a total increase of 104,000 tons for the market over the year next preceding.

Now you want to know, of course, what became of this extra paper tonnage. It has been suggested by some who are not familiar with the situation that the temptation to supply the demand of foreign countries was so great as to induce the manufacturer to overlook the needs of the American consumer and send not only his increased production abroad, but likewise to export additional paper, leaving the local supply less than it formerly was. The facts are these: The exportation of book paper from the United States during the fiscal year ending June 30, 1916, amounted in round numbers to 21,000 tons more than for the year next preceding. These figures are taken from the Government reports. Therefore, if increased production and reduced stocks amounted to 104,000 tons, and exports increased only 21,000 tons, the domestic market was supplied for its own use 83,000 tons more during the last year than during the former.

It may surprise you to learn that, in spite of all we have heard about sending paper out of the country, the entire amount of book paper exported during the year ending June 30, 1916, was only 36,000 tons, which was less than half the increased production.

That it was consumed goes without saying, which demonstrates what I have already stated, that local consumption has enormously increased. Mark you, also, that these figures do not take into account the reduction of stocks on hand with the jobbers or publishers. It is my opinion that if this loss were also estimated the increased annual consumption in the United States would amount to something like 100,000 tons.

I would also call your attention to the fact that this last fiscal year in which the increased production is noted began with the 1st of July, 1915, whereas the demand did not make itself materially felt until toward the close of the year, some four or five months later. Therefore the average increase for that fiscal year was not equal to the increase of production and consumption as we have had it in recent months.

Why, you ask, is more paper being consumed than formerly? This question you can answer as readily as I. The fact is that the American people are busy and paper consumption always increases with increased business.

It may occur to you to inquire why at the prices now offered the mills are not producing and marketing more paper and relieving the situation with the presses. They are not doing so simply because it is a physical impossibility, the impression of some to the contrary notwithstanding. I believe I am perfectly safe in saying that no industry has ever tried harder to supply the market demand than the paper manufacturers are now trying, and I think the figures will bear me out in the statement that this effort has not only been an earnest one, but likewise an efficient one.

During the greater part of last year, as well as for a long period previously, the productive capacity of the American mills exceeded the market requirements. There was not only idle equipment in the mills, but, there being no necessity for forcing production, some mills apparently acquired the habit of loafing. They were not getting out their maximum capacity because nobody wanted it.

With the increased demand the mills put all their equipment into operation, and have brought it all up to the highest possible state of efficiency. They have likewise managed to get the best possible results out of their operation, which is shown by the increased tonnage put on the market in spite of the fact that no new mills were constructed or new machines added within the period considered. In other words, the increased production was gotten out of the old equipment, considerable money being expended in adding to its efficiency.

It is beyond the limits of human expectation to accomplish more in the direction of increased production for the time being than has already been accomplished. This is fully demonstrated by the reports made to the Bureau of Statistics. At the beginning of the last mentioned fiscal year the book paper mills in the United States were losing on the average about 16 per cent of their time. In estimating this percentage we do not consider the time which is unavoidably lost on account of the interruptions incident to regular

and normal manufacture, such as changing orders, changing wires and felts, time lost by paper breaking on the machines, and other items of that character. The 16 per cent which we figure lost was the additional time which the mills might have been operated had they been supplied with sufficient business to justify it.

About the first of September of last year the demand began to increase and so continued up to the present time. The mills at the same time increased their operations with the demand until the maximum was reached; and there has been no falling back that could be avoided. Since the first of March of the current year the book paper mills in the East have run 97 per cent of the time continuously. That is to say, counting 24 hours to the working day and 6 days to the week, they have on an average lost but 3 per cent of the actual time; which loss is accounted for entirely by accidents requiring repairs, shortage of supplies, transportation difficulties, labor troubles, and other things too numerous to mention. Ordinarily an industry which operates 90 per cent of its capacity in prosperous times is thought to be doing well.

The western mills, on account of strikes and floods, were prevented from doing quite so well, but they lost not a minute that could be avoided.

Not only has the record so far as time is concerned been excellent, but the tonnage produced indicates the efficiency of equipment and management. The mills in previous years, when demand was slack, had not been able to demonstrate what they could actually do when forced. The capacity ratings, therefore, have proven to have been low, but in spite of some revisions of these ratings, the average production throughout the last seven months has been above 100 per cent of the rated capacity of all the mills and this in spite also of the further fact that some of the western mills, those at Kalamazoo, Mich., were seriously interrupted by floods and strikes.

That the increase in consumption of book paper has been so considerable may be a matter of surprise to those of you who have not taken the pains to investigate the question. A number of publishers have expressed to me a doubt that there had been any increase in demand, basing that conclusion largely upon their own experience. The trouble is that most publishers of large periodicals over-estimate their relative importance in the trade; apparently believing that they require the greater part of the book paper produced. Such is not the case. I do not have the exact figures at hand, but it is safe to say that more than 50 per cent of the book paper goes to the small dealers and consumers and not to the big periodicals, and it is in this diversified and special use of paper that there has been the greatest increase in consumption.

The question is sometimes asked what the manufacturers are doing to meet this increased demand and why they were not prepared for it when it came. There was indeed no reason why they should be prepared, but every reason to the contrary. In the first place, the paper maker did not know it was coming any more than you knew it. He did not have the gift of prophecy by which to forecast the great European war, nor did he know of the tremendous increase in domestic business which we have experienced.

For years his equipment had been more than equal to the demand and there was nothing to indicate a necessity for better preparation. Moreover, everything which has been done by our public officials and by Federal legislation in recent years has directly discouraged the further investment of money in paper-producing equipment in the United States. The daily press demanded such policy and its voice was heard. We were told by the daily press that this country could not take care of the trade in the future and that the market must be broadened by giving them the opportunity to buy elsewhere. That opportunity was given and all the paper-producing countries of the world were invited to enter and occupy the American market. The result has been that in recent years new mills have not been constructed nor new machines added to any extent. A great deal of money has been spent in bringing existing equipment up to the highest standard of efficiency that it might survive the sharp competition of foreign producers. Inasmuch as the trade was looking elsewhere for its supply, the increase in equipment has been elsewhere.

Illustrating just what has happened, I quote from a letter recently written by the editor and publisher of the National Republican, a paper printed in Muncie, Ind., and addressed to the American Newspaper Publishers' Association. In discussing the paper situation this publisher says:

When the movement for free trade in paper was fostered by your organization under the Taft administration I wrote your president Mr. Ridder that I considered it unwise and unpatriotic for American newspapers to ask for privileges in the matter of tariff discrimination and that the ultimate effect of it would be to destroy the American print paper industry. I submit American newspapers to the exactions of foreign combinations, and ultimately would increase the price of paper.

This has happened. The growth of the American print-paper industry was arrested. The price on paper was never lowered, except perhaps to some important newspapers, by the Canadian manufacturers anxious for this legislation. The building of American paper mills was stopped. Millions of dollars of American money have gone to build up Canadian industry at the expense of American industry. Canada reciprocated by forbidding the exportation of pulp wood from Crown lands.

This sums up the situation, and I submit that, having declared the desire to procure their requirements from foreign sources, it is not fair now to blame the American producer for his inability to supply the demand when these foreign sources fail.

This statement is made without intending that it should have any political significance, for, so far as the paper industry is concerned, it has received the same kind of treatment from both parties and is under no obligation to either for favors conferred.

But what are the manufacturers doing to meet the future demand? What can they do prudently? In the first place, it requires a long time under ordinary conditions to build and equip a paper mill or even to add a paper machine. Now, it is impossible to procure such equipment in any reasonable time or at any reasonable price. To enlarge a mill at this time means paying double for expensive machinery, without any guaranty of its delivery within less than a year, perhaps not then, without any assurance whatever that there will be need for it when delivered. These abnormal conditions can not and will not always last. The productive capacity of the American mills exceeded the demand before the European war began and will probably exceed it again when that war ends, without increasing the number of plants or enlarging the old ones. Why then should any one invest money upon an outlook so unpromising as to return?

When we come to discuss the present prices at which book papers are selling there is nothing definite which I can state more than you already know, but there are some things to which I would call your attention.

The prices which we hear quoted and upon which the public bases its belief that all the paper manufacturers are fast getting rich, apply only to spot sales. It is my opinion that fully one-half of the book paper going to the trade to-day is being delivered under contracts made last year when prices were at the minimum and at a rate considerably less than that which could now be obtained for the materials used in the manufacture. Therefore, the average returns for paper to-day do not begin to be what they might be made to appear from quoting the highest prices at which spot sales are made.

I do not know what the market price of paper is to-day. I do not believe anyone knows, because it is so variable. Neither do I know the cost of production, except in the general way that must appear to everybody that this cost has greatly increased. It does not happen to be my duty or privilege to have any voice in determining these matters; but I do know that practically everything entering into the manufacture of paper has advanced by leaps and bounds, as has the labor which is required in the manufacture. Basing sales entirely on cost of manufacture would mean a big increase in the price of paper. But I do not pretend to declare that the increased price of paper is measured by the increased cost of production, for I do not know.

There seems to be a feeling among publishers particularly that any increase in the price of paper to-day over what it was 12 or 18 months ago should in any event be limited to the actual increase in the cost of production; and it is even declared by some that, for the sake of making it as easy as possible on the consumer, the manufacturer should bear a part of the increased production cost without passing it on to the buyer.

In the first place, it does not follow that under the ordinary rules of either ethics or commerce the market price of a commodity should never advance more than the increase in cost of manufacture. This might be true if it were agreed that the producer is entitled to ask and permitted to receive a price for his goods which will at all times and under all circumstances guarantee a reasonable profit in return for his investment and diligence, basing such profit upon the varying cost of the article he manufactures. In other words, the limitation of a profit might be entirely reasonable and just if its procurement is continuous and unfailing. The dividend, if limited, should likewise be guaranteed. It is not fair to fix a maximum return without at the same time fixing a minimum, for if there are violent fluctuations in one direction, it requires like fluctuations in the other to equalize the situation.

When men invest a large amount of money in an industrial enterprise, it is in most cases so invested not with reference to what may be accomplished in any particular year, or even a short term of years, but solely with respect to the results of continuous operation over a long period of time; therefore, the average condition is the one upon which the prudent man must figure. In manufacture, as in everything else, the high tides must take care of the low tides. The prosperous seasons must provide a reserve for the dull times.

This is a well-recognized principle in all commercial life. It is because men do not expect to be able every day of their lives to enjoy an income sufficient to meet their requirements that they deposit their surplus in savings banks, insurance, or other investments as a safeguard against the time of trouble. We ought to make more hay while the sun shines than we consume, because we may need some hay when it rains, and so far as the paper maker is concerned he has had little sunshine in many long years. It is the same with all business. If a manufacturer is not permitted to make some money in a prosperous year, from what source will he procure the necessary funds to tide him over the disasters of other seasons?

It must not be forgotten that year after year paper manufacturers have been selling their product at an unreasonably low price. Indeed, they have had no voice in determining that price; it has been limited to what they could get. If, then, the producer must sell at what he can get when the price gives him little or no profit, or subjects him to a loss, why should he not sell at what he can get when he is able to recoup some of his losses, or to help pay off the accumulated obligations of lean years?

There is no reason in the world, though some people seem to think so, why the paper business should not be regulated by the same economic and commercial regulations that control any other legitimate business which is of a private nature. Public utilities and certain other enterprises which enjoy special privileges conferred by the Government are, of course, subject more or less to statutory regulations in the fixing of prices, and when men invest in the stocks of public corporations they understand very well at the time what the restrictions are. It is not so with private enterprise, which asks no favors of the Government, such as the right of eminent domain. With these private enterprises the law of supply and demand is the natural and abiding price regulator; and that law is no respecter of persons or profits. When there is overproduction the manufacturer must suffer the loss. When there is scant supply he may perhaps make up that loss.

For the reason that business fluctuates from prosperity to dullness, and because it will always be so, it is not fair, therefore, to contend that when demand exceeds supply the price of a commodity should be limited to cost of production plus a reasonable profit, if at the same time such manufacturers are not permitted to have cost of production plus a reasonable profit when supply exceeds demand. Economic laws and regulations must not be suspended and modified to meet a temporary situation. It is only by their universal application year after year that justice is done to all by the law of averages.

When, some months ago, a considerable portion of the paper manufacturing equipment in this country was idle and all available space at the mills and in the warehouses was filled with the unsold overproduction, we did not hear of any consumer suggesting that the price of paper should be fixed by adding a reasonable profit to the cost of production. When a price was quoted to a prospective purchaser, it was usually met with the reply that the same paper could be obtained elsewhere for less money, which reduction the manufacturer was obliged to meet or lose the order. No one then thought of challenging the right of the consumer to get his paper where it would

cost him least. The same right forever remains to the buyer of paper or anything else. Why, then, should not the manufacturer have the corresponding right to sell his paper where he can get the most for it?

Some of us remember very well that a few years ago when the news print paper situation was looked after by the late John Norris in behalf of the American Newspaper Publishers' Association, he contended that the value of an article of commerce was determined by what people were willing to give for it. He insisted that the paper manufacturer was entitled to charge for his product the price at which it would sell at public auction, and no more. To illustrate his theory, he did actually on one or two occasions make sale of some news print at public auction; this at a time when the market was oversupplied and no one particularly anxious to bid. The sale, of course, was made at a low price, and he made diligent use of this occurrence when testifying before the Ways and Means Committee in Washington, which was then considering a revision of the tariff. Moreover, a great many of the newspapers heartily approved the principle for which Mr. Norris contended and supported him in the presentation of his case.

If the fixing of selling price by auction was the right principle five or six years ago, it must be so to-day. Now, what would happen if the paper produced in this country were disposed of in that manner at the present time? In the first place, there would be an immense increase in the tonnage exported. Generally speaking, the paper famine is much more acute in other countries than it is in the United States, and foreign buyers are much more ready to advance the price than domestic consumers. Orders are being received every day from exporters, accompanied with offers of most tempting figures. Many orders, indeed, are sent in stipulating only the delivery of the paper and leaving the price to be fixed by the manufacturer. Most of these, though so inviting, are rejected for the reason that American manufacturers as a rule are inclined to take care of the home trade in preference to the foreign and are for that reason selling their product to domestic consumers for less money than they could get abroad. If it were the practice to sell to the highest bidder, there would be a great deal more complaint of paper famine than there is now, and prices would be substantially higher.

Manufacturers, indeed, are not fixing any price to-day, as a rule. They are not offering their product for sale, because more requests for paper are voluntarily made of them than they can meet. The prices at which such paper as is not already covered by contract is being sold and which we hear quoted are simply the prices consumers are offering and perfectly willing to pay.

The present unusual situation can not always last. If for the time being the American manufacturer of paper is able to make up somewhat for his loss of profits in past years of depression, or even to lay aside a reserve to meet the market decline which will surely confront him in the future, it is only fair and right that he should be permitted to do so. It matters not how much out of proportion the present return on investment may seem to be, if, indeed, there is any reason for such appearance, he has for so long been in the throes of a slump that in the end his financial batting average will not be above normal.

EXHIBIT 3.

THE PAPER SITUATION.

ADDRESS OF ALEXANDER THOMSON, SALES MANAGER CHAMPION COATED PAPER CO., HAMILTON, OHIO, DELIVERED BEFORE THE BEN FRANKLIN CLUB OF CINCINNATI OCTOBER 26, 1916.

In an unprecedented emergency which has made so important a commodity as paper rise in price to an extent that has caused much friction and necessitated much adjustment, I feel it a pleasure as well as a duty to offer as full an explanation as possible of the causes that have led to the present situation.

In a seller's market, I feel that our information should be common property; that the printer should raise his price to his customer, as he must, on the basis of statistics instead of cuss words. In an uncomfortable situation I believe that our future as paper makers will be better conserved if the printers and consumers of paper judge the paper and pulp manufacturer by what he really is than by what the uninformed are likely to think of him.

It seems to be common opinion that the present level of paper prices (and they haven't been so very level, either) is caused by a combination of the war in Europe and the grasping cupidity of the United States paper manufacturer. Now, I am perfectly willing to admit that the war has had something to do with paper prices, and the United States paper manufacturer may desire to turn an honest penny when he sees the first real chance since the panic of 1907. There are, however, some very real reasons why paper prices are high that have nothing to do with the war or the thriftiness of the domestic manufacturer.

A number of years ago, when Mr. Taft was President, he conceived an idea of reciprocity with Canada. Tucked securely away in one corner of this reciprocity treaty was a little clause, so little that nobody noticed it, except those who were interested in having had it tucked in there (you see, I ain't namin' no names, as the schoolboy said). This little clause was worded to the effect that whether the Canadian Government accepted reciprocity or not, nevertheless pulp and paper valued at not over 2 cents per pound were to come into the United States free of duty. As is well known, Canada rejected the treaty, but she couldn't reject that "double-barreled" section of it, which immediately opened this country wide to the news paper and pulp of Canada and under "the favored-nations" clause to practically every other nation on earth.

The immediate result of this gentle "love tap" by our administration under President Taft was an enormous increase in the importation of Canadian news paper, with the reflex result that a number of mills who had made news print in the United States for a number of years were forced to make book paper. As there were already more

mills in this country making book paper than there seemed customers to use the paper, there was in a short time a very pretty state of demoralization in our paper-manufacturing business. To complete the picture, our astute Canadian friends, having already been presented with the news-paper manufacturing business of the United States by the United States Government, very cleverly have decided to make the situation a little more "air-tight" by arranging to put an export duty on any pulp wood exported to this country from Canada, thus further increasing the domestic cost of production.

I am reciting this tale of woe, not to ask your sympathy, but merely as an explanation of the decline in paper and pulp manufacturing in the United States. The Canadian Government has shown us the courtesy, in return for our kindness, of raising the duty into Canada from 25 to 35 per cent. With unimportant exceptions, there has been no increase in our paper and pulp capacity since this body blow was struck. During the succeeding years many mills have been built in Canada by American as well as Canadian capital, and many American workmen have emigrated to Canada to help operate them. When the reciprocity treaty was offered to Canada, we were importing from that country about 100,000 tons of news print yearly. This year we will import, if we maintain the present rate, over 1,100,000 tons. Is it any wonder that when the United States publisher of newspapers turns to the domestic manufacturer of news print with request for low prices and quick deliveries, the latter may be a little inclined to point across the border and say, "Let George V do it," for had it not been for the reciprocity treaty which led to the Canadian invasion of news paper and pulp, which by reflex action caused the great overproduction of book paper in this country, I can see no reason why the domestic manufacturers should not have made their usual annual increases in capacity, which, up to that time, had amounted to about 10 per cent per year. Such an increase, continued up to the beginning of the European war, would have given the United States a paper-producing capacity which, although it might not have entirely covered our present needs, would certainly have prevented the price from rising to present or soaring to the higher figures which seem imminent in the immediate future.

The sulphite pulp situation is almost identical when the favored nations clause automatically removed the duty of one-eighth to one-fourth cent per pound from sulphite pulp, the imports from Scandinavia increased just as newspaper imports had from Canada, from a small beginning per month we have increased until at the beginning of this year we were bringing in 40,000 to 45,000 tons per month. The domestic capacity has suffered accordingly, so that it is little wonder than when this half million tons of imported pulps has been nearly shut off by the exigence of war, the domestic producer is unable to meet the sudden and fierce demands upon his product.

You may ask why he does not increase his capacity, but that is not possible in the first place, nor are these same producers unmindful of the conditions prevailing before the emergency; they know that as yet no provisions have been made to place them in any better position to meet foreign competition than existed before the opening of hostilities. They have seen the fate of the Louisiana sugar planters, who were offered as a living sacrifice to cheap sugar by the present administration, and it is doubtful if many domestic paper manufacturers would

add greatly to their output unless they could do it with the assurance that they could either make enough to pay the cost plus a profit before the end of the war or were guaranteed that the industry in this country would hereafter be afforded a reasonable and uniform degree of protection. Lest I seem to be disparaging Mr. Taft's administration, let me say that the paper manufacturer in the United States has never found any "soft spots" in any administration, and the one now in power has just made a little change in the tariff which will allow all pulp and paper valued at 5 cents per pound or under to come in free of duty, instead of only 2 cents, as provided by our former administration. I mention this only that you may have a perfectly clear understanding as to why the domestic manufacturer has hesitated somewhat to increase his capacity, and why he can not take care of the present emergency.

Some day the American people must decide whether they want their products made at home or whether they want to buy them abroad. I am not arguing either for free trade or a high tariff, but I can not refrain from calling your attention to the fact that many consumers will pay out, for paper, for instance, during the duration of this war, more money than they have saved on imports during their previous business lives. The only saving feature, however, is that the money they pay to us domestic manufacturers will stay at home, and our customers will at least have a sporting chance to get it back again from us after the war.

Just how much cheaper paper would be to-day if our manufacturers had not been "man handled" so much, I am not prepared to say, but I believe that a very substantial saving would have resulted and that many vexatious delays on deliveries would have been avoided. I believe that in the long run the American consumer is safer in the hands of the domestic producer than in Canadian or Scandinavian or any other. Whether the war and its drastic experiences have taught the consumer this lesson, we can not know at present.

You naturally are interested in the present and future of paper prices. You want to know why book paper should cost to-day 8½ cents and up instead of 3½ cents, and how much it will cost next winter and next year.

Let me tell you frankly, in the first place, that paper has been selling too cheaply in this country for several years, for reasons which I have already tried to outline. It will never again be as cheap as during the period of depression in the years 1913 and 1914, no matter how depressed business might become, and I believe it will be higher before it goes lower.

The only thing which could possibly bring the price of paper back to its former figures would be a revolution in the price of wages in all our industries which history teaches us is not likely to occur.

I have tried to impress upon the paper trade of this country the value of buying their paper uniformly, whereas a matter of fact the buying ever since the opening of the European war has been entirely spasmodic. When the war opened we had a short period of depression, followed by a wild scramble for paper which lasted several months, only to be followed by another period of depression caused by the belief of the consuming trade that paper had reached its apex in price.

We have had three of these scrambles since the beginning of the war and are about due for another, and the paper manufacturing trade is in a very poor condition to meet it.

The natural, in fact the inevitable result, has been sudden rises in the price of paper which could have been partially avoided by sane buying for actual needs only, instead of keeping the whole country waiting until the last moment and then everybody closing in on the manufacturers at once.

Paper being a universal commodity and a necessity to civilization, I feel that those who are consumers, as all of us are, have a moral right to know why paper has more than doubled in price for every reason aside from the inability of the United States mills to take care of even the domestic consumption.

You have, of course, heard so repeatedly of the increase in the cost of chemicals, pulp, labor, coal, and other articles which go into the manufacture of paper that a repetition might tire you.

I feel that you should know, however, specifically just how great this increase in cost has been as far as I am able to give you the information and that wages is one of the chief factors aside from pulp.

During the latter part of 1915 bleached sulphite pulp sold at a universal price of \$2.75 per hundredweight. It is always sold on the basis of 10 per cent moisture content, which would make the net price as it is put into the beaters at the paper mill, approximately 3 cents per pound. To-day this same pulp is commanding 8 cents per pound, and as it contains 10 per cent of moisture it is necessary to add 80 cents per hundredweight to the price instead of 27½ cents as was necessary when the price was 2½ cents, in order to arrive at the net price.

The reason that sulphite has advanced to this extent is primarily on account of the shutting off of the imports of Scandinavian pulp. We have been importing for several years a gradually increasing tonnage until during the last six months of 1915 and the first three months of 1916 we were bringing in approximately 45,000 tons per month from Sweden and Norway. In April this volume of imports commenced to shrink and by July it had gotten down to approximately 10,000 tons per month. Last week there was only 1,000 tons of Scandinavian pulp brought in, or about one-tenth of the normal supply. This Scandinavian pulp is nearly all unbleached and the market to-day is approximately 6½ cents per pound, whereas late in 1915 the same pulp could have been bought for \$1.90 per hundredweight. It is, of course, little wonder that there have been advances in the price of paper made from such costly pulp.

The advances in the prices of chemicals have been very much more spectacular, and adequate supplies are still not obtainable at any price. Rosin has advanced from \$3.50 to approximately \$6 per barrel, and there is about 1½ per cent of rosin in all book paper. Alum has more than doubled in price, going from 90 cents per 100 pounds to a little over \$2. Bleach, colors, etc., have also made the balloon ascension.

Before the war many of the domestic paper mills were buying their fourdrinier wires from Scotland and Germany, and the domestic mills were curtailing their output from 20 to 35 per cent in consequence, simply because they could not meet the competition of the foreigner based on his lower cost of labor. Naturally the domestic

paper mills had to buy their wires in the cheapest market, just as they have always expected the paper consumer to do. The result, however, was decidedly without benefit to either the paper manufacturers or the wire weaver, as times were so bad, because of the enormous importations of various commodities, that the paper manufacturer was unable to run full, so that the only beneficiary of the importations of wires were the Scottish and German wire weavers, who ran merrily full while the domestic weavers were shutting down. It is at least partly for this reason that domestic fourdrinier wires are practically unobtainable, as, of course, the domestic weaver has failed to increase his plant in the face of free-trade competition which has taken place during the past four years and is not in a position to take the business which hitherto went abroad. Some day the American people will wake up to the fact that it is a great deal safer to have adequate facilities at home to take care of the entire production of any commodity than to buy the same commodity abroad even at a cheaper price.

The "high cost of strikes" must be figured in the present price of paper, if we are to give the paper manufacturers all the credit that is due them for not having raised the price of paper more than they have. There is practically no important paper mill in the country that has not had a number of strikes during the war period, and none that have not had to add one shift to their labor system, in other words, to employ three shifts of eight hours each to form a day's work, where formerly they employed two shifts of twelve hours. When I tell you that these men receive the same pay for eight hours that they formerly were paid for twelve you can readily figure the enormous wage increase of a mill which formerly employed 1,200 but now has to employ 1,800 to get the same output.

Another item of increased cost in paper manufacturing which ordinarily escapes attention is the enormously increased interest charge on materials which must be carried, some times for many months, before they are made into paper. Manufacturers must to-day purchase where and when they can and when they have an opportunity to buy a large consignment of pulps, clay or other material, they must take it and store it or run the risk of shutting down. This means that in a plant producing 200 tons of paper per day, which ordinarily would carry in round figures about \$1,000,000 worth of materials in stock, that even if they carried the same amount of materials on hand the value would be over twice as great and consequently the interest charge would be doubled. In addition to this, there is, of course, the risk in carrying this increased value on account of floods or fires, as insurance can not be collected on stock if damaged by flood and only on the actual purchase price in case it is damaged by fire, although it may cost double the amount of the purchase price to replace it, therefore the manufacturer not only has the increased interest charge, but stands liable to lose in case of a total loss by fire \$2,000,000, where before he only risked \$1,000,000.

Another rather obscure but nevertheless potent reason for the advance in the price of paper is the bidding of the consumer himself for paper to the manufacturer. In other words, the producer is constantly confronted with the fact that his customers are willing to pay him more than the market price for quick deliveries. Every mill has had to decide for itself as to whether it would accept any

orders which were received with a bonus attached for quick shipment. I am happy to say that I can "prove an alibi" to such an accusation, but nevertheless the fact that many consumers are eager to pay a bonus for paper certainly does not work prices downward. However unfair the practice may be, the blame must be attached to the temptor and some credit should be given to the paper mills who have resisted such attractive propositions.

One of the most creditable features that the manufacturers can point to in their conduct during the past year is their protection of the domestic trade against the bidding of exporters and foreign customers.

The mills have repeatedly been favored with orders sent in from customers abroad whom they probably have never heard of, and in many case have to consult an atlas before they can locate the customer's place of business. I have myself repeatedly had to look up the names of strange sounding towns in Africa, Java, South America, Japan and other foreign countries in order that I might send polite letters declining unsolicited orders, amounting to a total of at least 15 per cent of our output for the year. Our statistical bureau advises us that at least one-third of the total output of the American book mills could be sold abroad without special solicitation and at prices higher than the domestic consumer is paying.

Apparently our domestic friends are not aware of this good treatment, as there seems to be a commonly held suspicion that a large part of the output of our paper mills is being exported. As a matter of fact, out of a total production for this year amounting to about 776,000 tons only 25,000 tons total has been exported and nearly this amount is exported in normal times.

Our total exports of printed papers other than news have been as follows during the war period:

For the eight months up to August 31—1914, \$1,049,000; 1915, \$1,227,000; 1916, \$1,441,000.

When you consider the advances in price it is evident that the exported tonnage has actually decreased.

It is evident, however, that if at any time the domestic demand should fall off, the manufacturers could without hurting their own consciences in any way turn to this foreign source of orders with considerable profit to themselves, as the foreign demand is constantly becoming more insistent.

Very few people have any idea how much book paper is produced in this country in a year. During the fiscal year ending June 30, 1915, the book-paper mills in the United States produced 697,000 tons of 2,000 pounds each. The same mills during the fiscal year ending June 30, 1916, produced 776,000 tons or an increase of 79,000 tons. Not only was this extra production of 79,000 tons available for the market, but the stocks of paper on hand at the mills within that year were reduced 25,000 tons, which means a total increase of 104,000 tons for the market over the year 1915. In fact, it even means more, for the mill stocks increased during the preceding year in spite of the low production. We have no stock at present. Inasmuch as our exports increased approximately 21,000 tons over the year preceding, it is evident that the paper mills of the United States produced for the domestic trade 83,000 tons of book paper more for the last year's consumption than for the former year. These figures

do not take into account the reduced stock on hand with the jobbers or the publishers in the United States. If they did, it is likely that the increased consumption in the United States for the year 1916 would amount to something like 100,000 tons or an increase of about 15 per cent, and this in the face of a shortage of raw materials such as we have never before experienced.

The mills of the United States are working to full capacity for the first time in many years, but they can not produce an unlimited amount of paper. At the beginning of the last-mentioned fiscal year the book mills in the United States were losing on the average about 16 per cent of their time on account of poor business conditions. About the 1st of September of last year the demand began to increase and has continued up to the present time. The mills at the same time, of course, increased their operations with the demand until the maximum was reached. Since the 1st of March of this year the book mills in this country have run slightly over 97 per cent of the time continuously; that is to say, counting 24 hours to the working day and 6 days to the week they have on the average lost but 3 per cent of the actual time. This loss is accounted for by accidents, shortage of supplies, transportation and labor difficulties, etc. Ordinarily an industry which operates at 90 per cent of its rated capacity in prosperous times is thought to be doing well.

It might be a matter of some surprise to you to hear that there has been such an increase in the production and consumption of book paper, but the above is the exact truth and the fact that the entire production has been consumed is conclusive evidence that this country is busier than it has ever been before.

The high prices currently reported for book papers are mostly for spot deliveries. I believe I am safe in stating that at least 50 per cent of the output of our book mills is still being delivered on old contracts at former prices, although the paper has been produced with high-priced materials and higher-priced labor. This fact, of course, materially reduces the profits which the mills are reputed to be making. Of course these contracts will run out eventually and will not be renewed at former prices. Nearly all of the large mills in the United States have been in the habit of contracting from 50 to 80 per cent of their total output and of course could not foresee the conditions which have come about during the past six months.

Many consumers of paper have contended that any advances in prices should represent the actual increase in the cost of manufacture. Such consumers are of course speaking only from their own self-interest. It is a fact that for many years they had purchased paper in the cheapest market with no complaint from the manufacturer. Had these same consumers been guaranteeing a definite percentage of profit to the manufacturer during times of depression, it might be ethical for them to-day to ask that the increase of price represent the actual increase in cost, but as no such guarantee has ever been made I can not see why the manufacturer to-day is not entirely within his ethical rights in selling his product wherever it will bring the best return. The fact that the mills have not marketed their product abroad is to their moral credit as well as to their business sense.

In the past the law of supply and demand has operated as the basis of all paper sales and logically must apply as the basis to-day if the manufacturer is to be considered as having had a fair deal.

Some idea of the difficulty that is encountered in obtaining the necessary raw materials for paper manufacture may be of interest to you. In the first place nearly all domestic manufacturers had contracts for Scandinavian pulp when the year opened; most of these contractors have failed to deliver, and it is impossible for the American manufacturer to go over to Sweden to enforce delivery or sue for damages. Therefore he must buy in many cases the same pulp which he has under contract but pay for it on the market price, although the paper which he makes from the pulp may be under contract at a very low price. We have had the doubtful pleasure of purchasing 4,000 tons of Scandinavian pulp within the past 60 days; only about 700 tons of this pulp has been delivered, and we are not able to obtain positive knowledge as to when we will receive the balance. We feel that some very expert trading around has been done on contracts under the guise of war emergency, but of course it is impossible for the domestic manufacturer to do anything except accept what pulp he is able to obtain at whatever price he is asked to pay and to pass the difference in cost on to the consumer.

A very large tonnage of English china clay is used in the manufacture of coated paper. Ordinarily this is imported in small parcels of about 1,000 tons, but for a number of months past the shipments have been delayed and the imports reduced. We have been advised by our English connections to import a whole shipload of English clay, as they said that the imports would probably be discontinued altogether for various reasons.

In order to bring in a shipload, which would arrive with tolerable certainty, it was necessary to charter an American vessel. This was done, and 5,000 tons of English china clay was imported in one ship. Of course it was necessary to build a special building to hold this enormous loose bulk of clay, and the additional freight alone on this item was \$25,000.

Before the war the American coating mills were in the habit of importing their casein, which is a glue made of milk, largely from France, but since the war started such supplies were shut off as the French soldiers evidently needed the cheese for food. The consequence was a raise in the price of casein from the average of about 7 cents per pound to any figure up to 28 cents. This rise alone would add approximately $1\frac{1}{2}$ cents per pound to the price of coated paper. The price of good casein to-day is about 20 cents per pound. As it is necessary to carry at least eight months' supply on hand in order to be safe it is obvious that the mills' risk and interest charge on this item is at least tripled, and in case of fire or flood their supplies would probably not be replaceable at any price whatever.

Taking it altogether the manufacture of paper to-day is not an easy game, although one that will appeal to any man who is fond of excitement and who likes to take a few gambling chances.

I believe that the paper manufacturers of the United States have, on the whole, acted toward their trade in as creditable a manner as any list of men in any other business whatever. We have realized that while the present is a seller's market that conditions will some day be reversed and that the golden rule is to-day a good maxim under which to operate.

EXHIBIT 4.

GENERAL CONDITIONS IN THE PAPER TRADE, AND THE MANUFACTURING SITUATION IN WISCONSIN.

[The following is a copy of a report made in April, 1917, to the president of one of the largest jobbing houses in the United States on the general conditions in the paper trade and on the manufacturing situation in Wisconsin. Also letter, May 25, 1917, giving results of further investigation.]

We have been hearing alarming reports regarding a possible shortage of wood pulp and pulpwood.

During the past week scarcely a mill has stated the conditions otherwise than that it was serious; that the cut of wood has been below normal; that the usual shipments at this period of the year are far short of normal, and the prospects of a shortage was strong.

* * * * *

The general talk is to the effect that a shortage of wood would seriously affect market conditions in the fall and winter months, but analyzing the various statements and eliminating the superfluous, it is the writer's opinion that the real conditions in Wisconsin are as follows:

Eighty or eighty-five per cent of the total pulp wood used in Wisconsin is composed of other grades than spruce, and the 15 per cent or 20 per cent being spruce. There is no question but the supply of wood pulp now in the yards of the mills is far below normal for this time of the year, but this is accounted for by reason of car shortage, rather than an under cut of pulp wood.

Hemlock, jack pine, and balsam can be secured in abundance and at all times of the year. Winter has been the season for cutting these grades, largely, I believe, because labor, harvest hands, and like laborers could be secured with less difficulty than in the summer and fall, and at a lower wage scale.

There are no reasons why these grades can not be cut and transported in the summer the same as in the winter, as nothing in the topography of the country where they grow precludes it. Therefore the normal quantity can reasonably be depended upon, and the alleged shortage must necessarily be confined to spruce pulp wood.

Let us admit that only 25 per cent of the normal spruce supply has been received to date, and that the cut has only been 50 to 60 per cent of normal and that no more can be cut this year, but what is cut is delivered. So far as Wisconsin mills are concerned, it would mean only a net shortage of from 7½ to 10 per cent of what is normally needed. The Wisconsin mills can get along without any spruce, if necessary, and if necessary in lieu of it, use hemlock and like grades, in the manufacture of qualities which are now made entirely of spruce, or mixed with hemlock, etc. Such

papers might not be up to standards, but would be used, if spruce pulp was short.

Most of the mills using the large quantities of wood pulp have their own timberlands, accessible to their plants, and though talking vigorously about the wood shortage, are comfortably fixed with their wood supplies.

There are some mills buying ground wood and sulphite pulp that may possibly be compelled to pay high prices, especially if a shortage of pulp actually exists in Canada, which is the principal source of supply. It is reported that the cut in Canada is only about 60 per cent of normal; this may be discounted to a certain extent, but probably not as extensively as the reports on the Wisconsin situation, as almost the entire Canadian pulp wood consists of spruce which must be cut and hauled to the railroad during the frozen periods, on account of the swampy country in which it grows making that impossible.

Assuming a shortage in Canada exists, then its extent, and the demand for paper become important factors in considering prices. There is no doubt about the additional cost of cutting and handling actually existing, as laborers two years ago were paid \$17 to \$20 per month and board, and were plentiful; to-day they get \$60 to \$75 and are scarce. Pulp-wood prices during the same periods show the following comparisons:

1914: About \$6 to \$8 per cord. 1917: About \$12 to \$16 per cord.

Hemlock produces 800 pounds of sulphite to a cord. Spruce produces 1,000 pounds of sulphite to a cord.

When run into ground wood pulp, under the present method of barking, they produce about a ton to a cord, with a loss of 10 per cent shown in conversion into paper.

In Wisconsin there has been a steady increase in the labor cost, estimated at about 40 per cent over two years ago, and only recently there have been strikes threatened, and agitators are still in the Wisconsin district trying to unionize and to have wages advanced. One mill has just fought out the union question with its employees. The troubles became so acute that a meeting of the employees was called, and the superintendent told them plainly and emphatically that they must then and there decide what they would do about quitting; that if they wanted to report for work the following Monday they would be reinstated, but only upon condition that they drop the union question, and if they did not report the mill would be closed indefinitely. All but three reported. Other mills in the Fox River Valley have agreed to a further wage advance.

The costs of felts and wires have also advanced again.

All things considered, there are many reasons why prices should remain firm, although there may be a readjustment of some prices on grades that are now out of proportion with others.

It is an acknowledged fact that most every mill in the Wisconsin district needs orders, and that a number of them (writing mills principally) have been down at intervals, and one mill has not turned a wheel for two weeks.

The mills all feel the necessity, because of high costs of manufacture, to maintain present prices, and find that less money would be lost by shutting down than would be lost by cutting prices.

It seems to be the consensus of opinion that reordering will soon begin again. It is felt that the falling off in mill orders does not mean a like falling off in consumption, but is due partially to a less consumption, but principally to jobbers and printers and consumers reducing the large stocks received during the aviation period.

Prior to 1915 the mills were running not to exceed 75 to 80 per cent of their capacity. During 1916 orders received were equivalent to about 120 to 125 per cent of their capacity. The increase in orders is estimated on the following division: Fifteen per cent speculative; 10 per cent protective; 5 per cent foreign sales; 10 per cent increased consumption.

Jobbers, printers, and consumers stocked up heavily. During the buying period stocks were generally increased from 50 per cent to 75 per cent above normal, and kept on that basis as long as prices showed an upward tendency, and deliveries were slow, while the consumption was increased, according to my estimate, only 10 per cent.

To-day the 15 per cent speculative and 10 per cent protective have entirely stopped, showing a corresponding falling off of mill orders.

In addition to this, the jobbers and printers (the heavy buyers during the aviation period) have been reducing their stocks, so that the 10 per cent covering increased consumption has also been withdrawn from the mills, leaving only the 5 per cent foreign business added to 1914 consumption to sustain the mills during the readjustment period. Naturally some—in fact most mills need orders, but the high cost of raw materials, labor, replacements, etc., almost precludes the possibility of lower prices.

The real question is, How long will present conditions continue? Assuming the above analysis to be moderately accurate, it may be reasoned that as the heavy buyers are reducing their stocks and refraining from reordering, it is simply a question of how much they increased stocks over normal periods, and whether or not consumption is keeping up.

It is quite true that some of the high prices have resulted in economies being practiced, but notwithstanding that, I believe the consumption to be at least about the same as during the more active period. Based on this, practically a three months' period of light ordering has been passed, and it is natural to assume that within 30 to 60 days there will be a revival of ordering to take care of the present consumption and possible increased consumption in all lines.

There is no fundamental reason why business should be poor; on the contrary, there are good reasons why the paper business should improve.

Past history shows that high prices and unusual business activity follow a declaration of war. In 1914 that principle in business was immediately recognized, and some mills attempted to advance prices, but at that time it was not a United States war, and the "war stimulant" was not felt until American securities had been unloaded from abroad and real money was gotten in circulation. This took a year; then came the usual result—an unusual activity and higher prices. With this country now involved, will not we again feel that "war stimulant" when the stocks of the jobbers and large printers are unloaded by consumption.

I believe we have every reason to look for it. The building of new ships, both merchant vessels and battleships, means more steel, iron,

copper, lumber, labor—in fact, an increase in all commodities—and the building up our Army as well means clothing, shoes, equipment of all kinds, and embracing again many commodities that are already extremely active.

The paper business follows the general business barometer up or down. It can not be forced upward or downward, except temporarily, unless the supply and demand justifies a change. It is a commodity too great in volume to be controlled, and as there is every reason to feel that general business is and will continue to improve, it is reasonable to assume the paper business will also improve.

There have been efforts made to depress prices. The Government has exercised its power; the publishers have used the press, giving great publicity to charges of extortion, combination, and restraint of trade; but withal the prices have remained firm—and why? Because they were and are justified by costs and supported by the invulnerable law of consumption.

Many jobbers argue that the prices were advanced beyond the points justified by manufacturing cost, but lose sight of the fact that the demand and not the cost of manufacture is the most potent factor in the regulation of prices. They now argue that as the demand is off that the prices must decline, but they do not consider that during the period when the gap between the reasonable profit above manufacturing costs and the sale price that the former has been constantly increasing, while the latter has been stable, and the margins over present manufacturing costs are no greater to-day, if as great, as during the years 1914 and 1915, and any reduction in prices, except for readjustment purposes, would be illogical and unbusinesslike.

MAY 25, 1917.

DEAR SIR: Replying to your letter of May 21, we give you below the writer's opinion of present and future market conditions.

The writer's recent report, which you saw, gave reasons for the present apparent depression in prices. Since that time further investigation has been made, with the following deductions:

I believe that the market has gone as low as it will go and that on some commodities there will soon be a reaction and a stiffening in prices. I do not look for any spasmodic changes on the general lines, because the writer has been of the opinion all the time that none of the prices made by mills during 1916 were warranted by increased manufacturing costs, but were justified solely because of the demand for the papers.

What the future may have in store for us is a serious problem. There are several important factors that could and may seriously affect manufacturing conditions, the demand, and prices. These factors are the questions of a supply of coal, a supply of pulp wood and pulp, a supply of labor and of railroad equipment.

The demand for coal for the next year or two, or until the end of the war, is going to be excessive. The allies are now practically dependent upon us for their supply. Our Government has admitted this. Therefore they will have the first call on what is mined. Public utilities and transportation companies and coal for private uses

will become second, with war-essential manufacturing industries third, and nonessential-manufacturing industries fourth. The paper industry belongs in the fourth class; consequently there may be great difficulty in securing sufficient coal to operate paper mills. This would create a scarcity of paper, and a consequent advance in price.

The matter of shortage of wood—the wood cut in Canada—has already been given you. The difficulty arising from a shortage in the cut of spruce wood may be accentuated by the fact that unless what wood is cut is received at the mills at a time when the water conditions will permit of its being ground, which will create a greater shortage than has already been estimated.

Another important factor is that of labor. The paper industry being in the nonessential class, will be more seriously affected by conscription than some other industries. An experienced paper-machine tender or paper maker can not be made over night, and many paper mills will doubtless be crippled by reason of losing valuable laborers. A radical change in the force of any mill unfavorably results in a reduced production and a lowering of the qualities. This factor may become so extensive as to seriously affect the amount of paper production in the United States, and prices will therefore be affected by reason of a shortage in production.

Another very important factor is the question of transportation. Even if the mills can secure wood, coal, labor and are able to run to full capacity, if the railroads are not able to handle the stock and get it away from the mill, a real shortage of paper will inevitably result and prices consequently be made much firmer. At present the transportation facilities are inadequate to handle the business of the country. Under present conditions the Government will, if necessary, commandeer cars for the transportation of such commodities as they may need in the prosecution of the war for handling men and materials. We will have soon facing us the matter of handling the crops.

The writer is of the opinion that by September or October there will be great difficulty experienced on account of the railroads being unable to handle the business of the country, and will place embargoes on such lines as are considered nonessentials. Unfortunately, the paper line has been put in that class. To us it is certainly essential, and unless we prepare for it, it is going to affect us and our trade very materially. I am of the opinion that we should gradually increase our stocks and be prepared for the difficulties which I fear we shall encounter before the first of the year.

Yours, truly,

EXHIBIT 5.

EXTRACTS FROM INTERVIEWS WITH AND STATEMENTS MADE BY JOBBERS GIVING REASONS FOR THE ADVANCE IN PRICE IN 1916.

DETROIT, MICH.

Analysis of the trend of the book-paper market in the last 12 months according to officials of ——— involves recognition of the fact that there was a tremendous amount of overbuying in 1916, both among jobbers and consumers. This was true it was stated both of their own company and practically all the important jobbers and consumers with whom they had business relations. As an example, it was stated that a certain customer for whom a large order was filled in 1916, recently returned a car of paper which did not conform to specifications and at the same time expressed a desire to have delivery of the corrected order postponed for six months. In explanation the customer stated that his warehouse was full and that he had no place to store the paper and would have no use for it for several months.

Owing to the uncertain outlook from a business standpoint consumers in lieu of placing new orders are now utilizing the reserved stock accumulated in 1916, which has recently resulted in a reduction in prices. Inquiries by telephone for orders from Chicago, Cincinnati, and other distributing centers are said to be of daily occurrence. Some of the western mills have recently cut prices as much as 2 cents per pound, or below actual cost of production, in case of mills which buy their pulp. In view of the high price of pulp, it is claimed, it is out of question for prices to decline any further. From present indications there will be no foreign pulp available during present year and the price of domestic pulp is likely to advance on account of the scarcity of labor and the difficulty of pulp mills in securing wood. If business conditions continue good, these factors are expected to bring about an advance in prices to a higher level than existed in 1916, as the present reserve stocks, as a whole, are sufficient for only a few months and consumers will necessarily enter the market again in a short time.

Jobber stated that it was due largely to a panic among the large consumers, who insisted on the full quantity contracted for being delivered, and also bought in the open market all they could carry. This created a demand in excess of the supply and forced the price up. The opposite condition exists to-day. The consumers are working on their old stocks, the jobbers' business is below normal, and the manufacturers are looking for orders.

BOSTON, MASS.

Informant declares that he does not know of any artificial means being used to boost the price. The advance took place so suddenly that no opportunity was given the jobbers to load up and thereby create a scarcity. The company has not at any time had an abnormal stock on hand. While the peak of high prices has probably now been reached, prices will not decline very much until the close of the war.

NEW YORK CITY.

When asked as to his opinion of the reason for the high prices, informant stated that it was due to supply and demand; to the increased cost of raw materials, labor, etc., and somewhat to the panicky bidding of the publishers. A mill having all the orders they could handle would put their prices considerably above the market price to discourage orders, but without success, as many publishers demanded paper at almost any price.

As to shortage of paper, he stated that a great many publishers and printers had bought great quantities of paper—far more than needed—and had it put in storage.

Regarding relief in the situation he stated that if the present quietness in the paper market would prevail for a few more months, the market would probably soften quite appreciably, but not as low as formerly because of the greatly increased cost of production. However, informant does not feel confident that this condition will prevail, and expects that still higher prices will come—because of the publishers demanding more paper.

Informant thinks that prices have advanced (1) because the mills are paying much more for their raw materials, and (2) because the demand has increased so greatly that supply can not keep up with it. * * *

The publishers, he said, all are using more paper, want still more, and go into the market and offer higher and higher prices for it, and of course when such an initiative as that is taken, prices are certain to go on up.

Mr. ———, vice president of this concern, had previously stated the same thing concerning the publishers' making bids in the market as a result of a panicky feeling that they could not get as much paper as they want. He said that if they would only content themselves by withholding from the market as much as possible for a few months the price of paper would begin to decline. No one, he thought, could blame the mill or the jobber for taking up a high price for paper when a publisher rushes in and offers it voluntarily.

He said, also, that he thought the mills were making much better prices to the magazine publishers than to the book publishers, as they know the latter can raise their prices on books while the former can not raise the price of magazines.

He also pointed out that the mills had trouble in getting laborers; that he understood they were offering as much as \$2.50 a cord to woodcutters and could not get the men.

ROCHESTER, N. Y.

The cost of everything going into paper has advanced and while the manufacturer producing his own wood and chemical pulp has made very large profits he could probably have made nearly as much by selling the raw materials on the open market.

There has not been much difficulty in securing book paper. While the price has advanced, deliveries for standard grades have, as a rule, been very prompt.

CLEVELAND, OHIO.

With respect to market conditions informant stated that book paper prices at the present time are reacting to some extent from the high levels of 1916. This is attributed in part to utilization of reserve stocks accumulated during the period of advancing prices and, indirectly, to uncertainty as to the trend of prices in general in the near future. Owing to unsettled market conditions, the publication of catalogues, which normally involves a large consumption of book paper, has been greatly curtailed; manufacturers being unwilling to commit themselves as to prices for more than a short period. This factor has influenced the demand for both machine finished and super-calendered paper, and to a greater extent the coated paper market, which has been dull for several months. He also stated that representatives of western book paper mills have recently canvassed Cleveland jobbers unsuccessfully in an effort to secure orders for book paper. The eastern book mills have for the most part contracted their entire output for the current year and are not soliciting any business.

In connection with the curtailment of domestic consumption there has been a reduction in the export demand for book paper. During the past month export orders from South America were canceled by cable in several instances, prior to the receipt of the orders which came by mail. The cancellation of these orders is attributed to the same factors which have reacted on the domestic market.

BUFFALO, N. Y.

Informant said that while there has been some increase in the cost of production because of the demands of labor both in the mills and in the woods and because of the increased cost of coal, wires, etc., it has not been sufficient anywhere near to justify the increase which actually has taken place. By far the greater part of the increase has been due to the abnormal demand upon the manufacturers of publishers, printers, and lithographers. That the demand is normal or subnormal now is evidenced by the fact that an order now placed with the mill will be on the machine inside of 48 hours, while last fall it took 2 or 3 weeks, and for special or odd sizes 2 or 3 months. As to the future prices he said, that while normally they would not reach the low level of 1915, but probably would be between 5 and 6 cents per pound. The reason for the present decline in price not being more abrupt is due to the probable effect upon the paper industry of the war measures now being acted upon by Congress. Paper is in the "nonessential" class and this lays the em-

ployees of paper manufacturers open to conscription. Also it will cause wood, coal, pulp, and other raw materials for paper manufacture to be discriminated against in the matter of securing shipping facilities. The railroads will not object to this, because these raw materials, being of low grade and bulky, carry a low freight rate, and the railroads will be glad to favor higher class freight with higher freight rates.

CHICAGO, ILL.

Officials of the ——— Co., in common with other jobbers, asserted that consumers themselves, through the accumulations of large reserve stocks in 1916 were responsible in part for the price advance of the past year. When requested to furnish details they were unable to cite any specific instance of overbuying, but insisted that the practice had been general and had been a material factor in bringing on higher prices.

EXHIBIT 6.

EXTRACTS FROM INTERVIEWS WITH AND STATEMENTS MADE BY PUBLISHERS GIVING REASONS FOR THE ADVANCE IN PRICE IN 1916.

A publisher in western New York made the following statement:

1. I believe that there is a shortage of wood pulp and chemicals used in the manufacturing. It would seem reasonable, when you consider how many men in this world are now engaged in military operations.

2. There is commercial unrest in the paper market. Consumers wondering whether the price is going to increase or whether they will be able to get their supplies at all. In a great many instances I think this leads to unusual buying, which would of course make an increased demand for the article.

3. There is an increase in the price of almost everything at the present time; this of course has its effect on paper; but it seems to me as though every person having to do with the manufacture or the sale of paper was inclined to "do his bit" in increasing the prices. In other words, if A raises his price why shouldn't B raise his? C and D and the rest of the alphabet don't want to let the opportunity pass.

4. There is of course almost an entire suspension of imported paper and wood pulp.

INTERVIEWS WITH NEW YORK PUBLISHERS.

No definite information, according to informant, is given out by the mills and the jobbers as to what the causes have operated to bring about the rises of book-paper prices. They all give as their reasons merely that of the increased cost of materials. He has no definite knowledge upon which to base his belief, but he believes that the price of book paper is all out of proportion to the cost of manufacturing.

Informant cited the usual causes for the high price of paper, such as increased cost of labor and of raw materials. In addition he called attention to the statement made by Judge Moore, head of the statistical bureau for the manufacturers of paper, in which he stated that the mills had suffered in the past from lean years and now that the opportunity was at hand to fatten up, they felt justified in doing so. He considers that the prices for machine-finished, supercalendered, and coated papers are all out of proportion to the increased cost and that the mills and the jobbers are simply robbing the public,

also that such prices as \$10.50 and \$12.75 for calendered and coated papers are entirely too high.

He considers, also, that increased domestic consumption has affected the market, especially that on the part of lithographers and printing houses. He has not heard of greatly increased exportation.

Informant is not of the opinion that there is any collusion among the mills or the jobbers, although he does find that the quotations from the mills and the jobbers are nearly always just about the same. He accounts for this, however, by saying that he believes that the sellers simply watch the market and watch each other very carefully and make quotations which are practically the same.

Informant stated the company had made no effort to contract for paper during the present year and would not be in the market for paper before next June or July, when he expected prices to be much lower. He stated also that in his opinion every other publishing house which had been able to do so had on hand a much larger stock than customary, and that this undoubtedly had tended to create a fictitious value, but said that as so many of the publishers had a sufficient stock to tide them over midsummer, they would keep out of the market during the interim (hoping for lower prices); he thought this of itself would cause a decrease in prices.

Informant was of the opinion that there have been just causes for some increase in the price of book paper, such as advance in cost of labor and of raw materials, but he was convinced that the price paid by publishers was all out of proportion to the costs. * * * Even paper salesmen, he said, admit that the prices are exorbitant. The chance was at hand when the mills could exploit the consumers and they did not hesitate to do it, as is evidenced by the fact that, although some of them have been unable to pay dividends, they are now.

STATEMENTS BY BOSTON PUBLISHERS.

Our new contract, entered into about October 15, 1916, was placed at \$6.60 per hundred pounds. At the time of making this contract we conferred with other paper manufacturers and dealers, but without being able to get a better price. In fact, it was difficult to get any concern to consider our proposition, as they claimed to be so well occupied in taking care of their own customers. The prices named to us were considerably in excess of the figure quoted by * * *, which we finally accepted. In this canvass of the trade nothing occurred to make me feel that there was any collusion between the dealers or manufacturers.

Rise in cost of wood pulp, in cost of clay, chemicals, and other minor materials; in coal; in labor; and in the working of the law of supply and demand. The very great decrease in the importation of foreign pulp, the increased domestic demand caused by general business conditions, and the greatly increased foreign demand for paper from countries whose normal supply has been cut off by the war, are strong factors. There is no doubt, also, that under present conditions book-paper mills are enabled to make somewhat better percentage of profit than for some years past, and are taking advantage of that opportunity. We have no reason to believe that the mills with whom we do business have gone to excess in the matter. There is good reason to believe, however, that the manufacturers of pulp as distinguished from the manufacturers of paper are enabled to demand and do receive from the paper mills prices 100 per cent or more in excess of those prevailing in 1915, and that this increase is the largest single item in the increased price of white book paper.

A Philadelphia publisher made the following statement:

Concerning the great advance in the price of paper we feel that there is some measure of justice on the paper maker's side. We feel that the profit on paper in the past has probably been too close, so that the increasing of investment in paper-making machinery has not been sufficiently profitable. Then when an unprecedented demand situation arises, aggravated of course by unprecedented labor and material prices, curtailment of normal importations, abnormal export demand, etc., there is not the elasticity for increasing the paper supply that there otherwise would be.

Of course, the present market price of paper represents the inflation of present abnormal world conditions just as does the market price of other commodities at the present time. When the inevitable readjustment of prices downward occurs (which we hope will not be long delayed) we feel it will be to the advantage of the publisher as well as the paper maker if a paper price can be maintained sufficiently above the former low levels to give the paper maker a fair profit.

A Chicago publisher wrote as follows:

The reason as given us by people interested in the manufacture of paper was primarily the shortage of pulp. Presumably this is true, but whether the shortage of pulp justified such a tremendous increase in price is another matter. Most likely not, so far as the question of making a proper profit is concerned. But, given a shortage of any commodity, the price advances beyond all proportion to the cost of production.

We do not believe there has been any price fixing among manufacturers; at least no evidence of anything of the kind has ever come to us. Practically there has been no need for it. The market price for paper has been, all things considered, about the same everywhere. We mean by this that the product of one manufacturer is selling relatively at about the same price as that of another. This might look like a trade agreement. We do not think it is so. Very high or very low prices do not come as the result of agreements.

Previous to the war there was plenty of paper pulp in the country, and paper was very cheap—so cheap, indeed, that few manufacturers

were making much money. All things considered, the price of paper then did not vary very much with the different manufacturers. No exact parallel can be quoted in support of this assertion, because each manufacturer has his own particular brand. All ordinary book paper, however, has practically the same characteristics, and, while the brands may be different, the quality is usually about the same.

On account of there being a big supply of paper during the time of which I speak the price went down to a point where the manufacturer was able to make a bare living only. No manufacturer was interested in cutting below the average price, and when he found out what this price was he usually stuck to it. We never heard of anything in the way of a combination of manufacturers to adjust prices.

It is doubtful whether paper will ever get back to the old prices. We do not think it will. After the war it will drop, of course; probably 50 per cent of the present price.

EXHIBIT 7.

TRADE CUSTOMS AS ADOPTED BY THE BOOK PAPER DIVISION OF THE AMERICAN PAPER AND PULP ASSOCIATION, MAY 1, 1912, AND LIST OF STANDARD SIZES AND WEIGHTS OF BOOK PAPER.

BOOK PAPER DIVISION.

Terms.—All sales to be on a basis of cash in 30 days less 3 per cent.

Prices.—The base selling price shall be for paper unpacked, in rolls or sheets.

Claims.—Damaged paper must be reported and claims entered immediately, so that it may be inspected before used.

Cost of packing.—Additional cost of packing to be added as follows:

Rolls of not less than 500 pounds net of paper, wrappers not to exceed 3 per cent of billing weight, 5 cents per 100 pounds.

Rolls of less than 500 pounds net of paper, and not less than 250 pounds, wrappers not to exceed 3 per cent of billing weight, 10 cents per 100 pounds.

Rolls protected by wooden heads and rods, containing not less than 500 pounds net of paper, wrappers not to exceed 3 per cent of billing weight, 15 cents per 100 pounds.

Sheets in interlapped bundles of not less than 150 pounds net of paper, wrappers and twine not to exceed 3 per cent of billing weight, 10 cents per 100 pounds.

In cases of not less than 550 pounds net of paper, case linings not to exceed 1 per cent of billing weight, 25 cents per 100 pounds.

In skeleton frames containing not less than 150 pounds net of paper, wrappers and twine not to exceed 2 per cent of billing weight, 25 cents per 100 pounds.

In solid board frames not less than 180 pounds net of paper, wrappers and twine not to exceed 2 per cent of billing weight, 40 cents per 100 pounds.

Weights.—Wrappers, case linings, and twine shall not be included in the scale or ream weight at which the paper is charged to purchaser.

To be as close as possible to the weight ordered, subject to a possible variation in the nominal weight not exceeding 5 per cent above or below the ordered weight. Paper within this range to constitute a good delivery.

To be stenciled with the weight made, so marked by the manufacturer, and there shall be no evasion by substituting letters or symbols for figures.

Weight ordered to be billed, unless shortage is in excess of 2½ per cent, in which case it shall be billed at actual scale weight.

Additional charge for light weights.—Minimum basis of weight to be as follows: Machine finish 25 by 38, 45 pounds to 500 sheets. For lighter weight the extra cost of manufacture to be added according to weight estimated as follows:

For each pound below 25 by 38, 45 pounds, to and including 25 by 38, 40 pounds to 500 sheets, 3 cents per 100 pounds.

For each pound below 25 by 38, 40 pounds, to and including 25 by 38, 30 pounds to 500 sheets, 5 cents per 100 pounds.

For each pound below 25 by 38, 30 pounds to 500 sheets, 10 cents per 100 pounds.

Supercalendered 25 by 38, 50 pounds to 500 sheets. For lighter weight the extra cost of manufacture to be added according to weight estimated as follows:

For each pound below 25 by 38, 50 pounds, to and including 25 by 38, 45 pounds to 500 sheets, 3 cents per 100 pounds.

For each pound below 25 by 38, 45 pounds, to and including 25 by 38, 35 pounds to 500 sheets, 5 cents per 100 pounds.

For each pound below 25 by 38, 35 pounds to 500 sheets, 10 cents per 100 pounds.

Special making orders.—Lots of less than 2½ tons to be charged at 25 cents per 100 pounds over and above the base selling price.

Heads, rods, and cores.—To be charged at cost, and if returned, customer to be credited with the same at the price charged, the manufacturer to bear cost of return freight on same.

Waste.—No printed waste to be returned, and no paper taken back unless damaged before delivery.

Paper on cores returned is not to be allowed for, except at the price of clean white waste.

In billing paper, no allowance to be made for waste.

Colors.—Any shade other than white or natural to be charged for at not less than 25 cents per 100 pounds, in addition to the base selling price.

Cutting.—Trimming paper: The cost thereof, estimated at not less than 10 cents per 100 pounds, shall be added to the base selling price.

Wrapping.—Wrapping in reams: The cost thereof, estimated at not less than 10 cents per 100 pounds, to be added to the base selling price.

Variations in quantity ordered.—Overruns or underruns must be accepted subject to the following possible variations:

Less than 2 tons, 15 per cent over or under.

Two to 5 tons, 10 per cent over or under.

Five to 20 tons, 5 per cent over or under.

Twenty tons upward, 3 per cent over or under.

BOOK PAPER SIZES AND WEIGHTS.

Report covering result of conference between a committee from the Bureau of Statistics, Book Paper Manufacturers, and a committee from the National Paper Trade Association, held December 5 and December 6, 1916, at Vanderbilt Hotel, New York City, regarding basic weights, standard stock sizes and weights, and running of book paper on substance or thickness basis:

1. The basic weight of machine-finish book remains 45 pounds to the ream, in size 25 by 38 inches as established under present trade customs.

2. The basic weight of supercalendered book remains 50 pounds to the ream, in size 25 by 38 inches as established under present trade customs.

3. Additional charges for weights lighter than basic weights remain the same as established under present trade customs.

4. Additional charge for less than 5,000 pounds of one size and weight, but of irregular "size" or irregular "weight" or irregular "size and weight" remains same as established under present trade customs.

5. Lots of 5,000 pounds or more of one size and weight will be made, as heretofore established under present trade customs, in irregular "size" or irregular "weight" or irregular "size and weight" without extra charge, subject only to additional charge for "light weight" if order be for light weight paper.

6. As heretofore established under present trade customs, no extra charge attaches to orders for 2,000 pounds or more of one size and weight where both "size and weight" are "regular."

7. Orders made on any of the following standard stock base weights shall be "regular" in "weight," 25 by 38, 40-pound, 50-pound, 60-pound, 70-pound, 80-pound, 100-pound.

Note.—45-pound is no longer a "regular" or "standard" stock base weight, but like other "intermediate weights" will be made in lots of 5,000 pounds or more without extra charge.

8. Orders made in any of the following standard stock sizes shall be "regular" in "size":

22 by 32	28 by 42	33 by 46	41 by 61
24 by 36	28 by 44	34 by 44	42 by 56
25 by 38	29 by 52	35 by 45	44 by 56
26 by 29	30½ by 41	36 by 48	44 by 64
26 by 40	32 by 44	38 by 50	

9. Orders for 5,000 pounds or more of one size and weight, "regular size" or "irregular size," will be made in any "intermediate weight," such as basis 45-pound, basis 56-pound, basis 67-pound, basis 78-pound, basis 89-pound, basis 94-pound, without extra charge, except for "light weight" if order be for "light weight."

10. In "stenciling" or "marking" packages containing book paper, whether bundles, frames, boards, crates, cases, or however packed. All information as to so-called "substance weight," "thickness weight," or "base weight," to be eliminated, i. e., left off. All packages are to be stenciled with size and weight.

A. H. NEVIUS,

*Chairman Committee, Bureau of Statistics,
Book Paper Manufacturers*

FOREST HOPKINS,

Chairman Committee, National Paper Trade Association.



